LIFFINCOTT LIBRARY

November, 1946

GEOGRAPHY, RESOURCES & INDUSTRIES

EDISON ELECTRIC INSTITUTE BULLETIN

EEI Committee Work — Grey Matter and Honest Sweat — Part II 369

The Public's View of the Electric Power Industry — JOSEPH C. BEVIS 375

Meter and Service Committee Meet at New Orleans — W. G. KNICKERBOCKER 378

Material Cost Trends for Electric Utilities — R. W. T. PURCHAS 379

Th' Goblins'll Getcha! . . . . . W. E. STURM 382

National Farm Electrification Conference Proves Outstanding Success 383

Dealer Salesmen Complete EEI Sales Training Course in Cleveland 386

On-The-Job Training for Veterans of World War II — C. L. DERRICK 387

Claude L. Matthews Awards Honor Employees' Devotion to Duty 389

In-Service Farm Electrification Training . P. T. MONTFORT 390

Appliance Marketing Problems . . . . . H. M. KELLEY 393

Personals 398

Conventions and Meetings 400

PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

September, 1945-1946

SOURCE AND DISPOSAL OF ENERGY—MONTH OF SEPTEMBER

	1946	1945	%
GENERATION* (Net)			
By Fuel Burning Plants	13,171,860,000	10,980,028,000	+20.0
By Water Power Plants	5,642,495,000	6,028,426,000	− 6.4
Total Generation	**18,814,355,000**	**17,008,454,000**	**+10.6**
Add—Net Imports Over International Boundaries	134,371,000	138,398,000	− 2.9
Less—Company Use	119,475,000	119,660,000	− 0.2
Less—Energy Used by Producer	343,148,000	95,603,000	
Net Energy for Distribution	**18,486,103,000**	**16,931,589,000**	**+ 9.2**
Losses and Unaccounted for	2,128,579,000	2,036,346,000	+ 4.5
Sales to Ultimate Customers	**16,357,524,000**	**14,895,243,000**	**+ 9.8**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of September 30th			
Residential or Domestic	29,376,191	27,957,711	+ 5.1
Rural (Distinct Rural Rates)	1,340,523	1,207,666	+11.0
Commercial or Industrial:			
Small Light and Power	4,635,900	4,321,459	+ 6.8
Large Light and Power	174,117	180,939	
Other Customers	120,590	117,743	+ 2.4
Total Ultimate Customers	**35,647,321**	**33,785,518**	**+ 5.5**
KILOWATTHOUR SALES—During Month of September			
Residential or Domestic	3,017,606,000	2,692,654,000	+12.1
Rural (Distinct Rural Rates)	488,671,000	382,519,000	+27.8
Commercial or Industrial:			
Small Light and Power	2,825,206,000	2,477,248,000	+14.0
Large Light and Power	8,799,652,000	8,028,316,000	+ 9.6
Street and Highway Lighting	183,880,000	174,655,000	+ 5.3
Other Public Authorities	455,407,000	562,136,000	−19.0
Railways and Railroads:			
Street and Interurban Railways	336,160,000	333,425,000	+ 0.8
Electrified Steam Railroads	200,967,000	199,707,000	+ 0.6
Interdepartmental	49,975,000	44,583,000	+12.1
Total to Ultimate Customers	**16,357,524,000**	**14,895,243,000**	**+ 9.8**
Revenue from Ultimate Customers	**$288,041,300**	**$267,943,400**	**+ 7.5**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended September 30th			
Kilowatthours per Customer	1,306	1,202	+ 8.7
Average Annual Bill	$42.71	$41.47	+ 3.0
Revenue per Killowatthour	3.27¢	3.45¢	− 5.2

(*) By courtesy of the Federal Power Commission.

Vol. 14, No. 11, EDISON ELECTRIC INSTITUTE BULLETIN; published monthly. Entered as second-class matter Aug. 17, 1933, at the post office at Philadelphia, Pa., under the act of March 3, 1879. Publication office, 56th and Chestnut Sts., Philadelphia 39, Pa. Editorial office, 420 Lexington Ave., New York 17, N. Y. Subscription rate $2.00 per year in the United States; $3.00 per year in foreign countries.

The Edison Electric Institute does not assume responsibility for, nor necessarily endorse or approve, statements made by contributors to the BULLETIN.

EDISON ELECTRIC INSTITUTE BULLETIN

Volume 14 NOVEMBER, 1946 No. 11

EEI Committee Work — Grey Matter And Honest Sweat

PART II

This article concludes a detailed description of the important projects to be developed by the Institute's committees during the coming year. The work of the General and Commercial committees was discussed in the October BULLETIN, and this issue covers the plans of the Engineering and Accounting committees.

COMMITTEES OF THE ENGINEERING DIVISION

THERE have been but few years since 1885 when NELA, the predecessor of EEI, was organized, in which many problems requiring the best qualified engineering attention that the industry could supply have not faced electric utility companies—and these problems have usually found appropriate committees already set up, and competently organized to deal with them.

Many of these difficulties, of course, required prolonged study and investigation that often extended over several years. To best meet this type of problem, the engineering committees have been organized as continuing bodies, carrying over from year to year. An orderly rotation of trained members to supply the required personnel is supervised by each committee chairman.

The committee chairman himself usually serves a two-year term. While from an administrative point of view, it might be better to retain exceptionally efficient chairmen in office as long as possible, this would be at the expense of denying like opportunities for this valuable experience to other promising members.

Although the engineering committees were first organized with rosters of from 15 to 18 members, they now average some 40 members each. This increase has been directly due to specific requests from member companies of the Institute for representation upon particular committees—representation upon these committees apparently being considered one of the foremost advantages of membership in the Institute itself.

A high standard of attention and performance is required of all members, and quite reasonably, in view of the importance of the work of these committees to the industry, and the public at large. For this reason, it is customary for chairmen to review their memberships annually.

The engineering committees do not design generating stations or distribution systems, nor do they determine what the actions of member companies shall be in regard to operating engineering problems. Their function is to provide a forum for the interchange of information and experience data, and to study all technical or other developments affecting the industry in the respective fields of activity of the committees, and then to apply the knowledge and experience of their members to the task of formulating courses of action which are offered to the industry.

Each member company is free to adopt the recommendations, as its management desires and as the suggestions appear valuable. The "batting average" of the engineering committees is decidedly high, and a fair measure of the uninterrupted technical progress of the industry can be credited to their work.

P. H. CHASE

Chairman, Engineering Division General Committee—Chief Engineer, Philadelphia Electric Co., Philadelphia, Pa.

Engineering Division General Committee

The Engineering Division General Committee, led by Chairman P. H. Chase, of the Philadelphia Electric Company, supervises the work of all of the engineering committees. Its membership consists of the committee chairmen, with fifteen members at large drawn from the executive engineering ranks of member companies.

In addition to its task of supervision, the committee also considers a number of projects that require overall policy review or action, due to their major economic aspects. Among these subjects are the review of codes and standards and the improvement of service reliability by changes in construction and emergency service protection methods.

The committee plans this year to develop on a broader and more integrated

R. M. VAN DUZER, JR.
Chairman, Prime Movers Committee—The Detroit Edison Co., Detroit, Mich.

basis the consideration of important engineering problems facing the industry, and thus increase its value to member companies.

Prime Movers Committee

The Prime Movers Committee, with R. M. Van Duzer, Jr., of The Detroit Edison Company serving as Chairman, has for its scope of activity the interchange of information on the design, operation and maintenance of steam electric generating stations, in order that more efficient and reliable operation may be realized.

The committee directs the work of nine subcommittees, each of which follows an assigned specific phase of power generation, along lines laid down by the committee. The printed reports of the Prime Movers Committee are the work of these subcommittees.

This committee cooperates with equipment manufacturers and others in the solution of serious operating problems. It has assisted in the initiation of many important research investigations and studies. Several of its members act on national engineering committees on which many other industries are represented, to present the views of the electric utility industry in matters of joint importance.

Among the important subjects to be followed by the committee during the year is a research project now being launched to find methods of preventing deposits from steam in steam turbines. New developments in gas turbines will also be closely watched, and reports made to the industry.

Four meetings are planned for the coming year, at which reports will be presented, and new ideas and information interchanged.

Electrical Equipment Committee

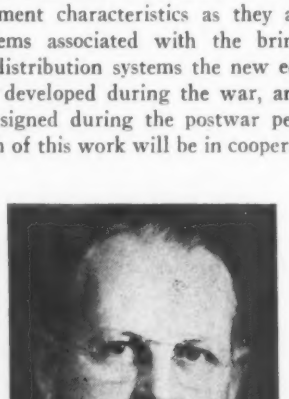
The Electrical Equipment Committee, led by Chester A. Corney of the Boston Edison Company, has as its field of activity the study of all electrical equipment and apparatus used by the electric company. For efficient functioning, the committee is organized in five divisions, each of which studies a specific phase of this subject.

The System Engineering Division will deal with principles and practices in regard to generating reserves, new transmission system developments and interconnections in the larger systems. A study of the basis of investment for increased reliability, which will compare added expenditures with estimated increase in reliability to be provided, is another interesting project for this Division.

The Apparatus and Design Division will keep abreast of new developments in apparatus, and in the assembly of apparatus in complete station design. Members are asked to report the characteristics of any new equipment being considered for use by their companies.

The Operating and Maintenance Division projects will cover the more important developments in these fields. The Division will revive a group to study operating and maintenance problems of storage batteries.

The Utilization Division will study equipment characteristics as they affect problems associated with the bringing into distribution systems the new equipment developed during the war, and to be designed during the postwar period. Much of this work will be in cooperation with other interested EEI committees.



C. A. CORNEY
Chairman, Electrical Equipment Committee—Assistant Vice-President, Engineering, Production, Transmission and Distribution, Boston Edison Co., Boston, Mass.

L. R. GATY
Chairman, Transmission and Distribution Committee — Electrical Engineer, Philadelphia Electric Co., Philadelphia, Pa.

The Foreign Practice Division is now being revitalized, and is active in reestablishing contacts with numerous foreign correspondents.

Transmission and Distribution Committee

The Transmission and Distribution Committee, under the chairmanship of L. R. Gaty of the Philadelphia Electric Company, is concerned with both overhead and underground matters in the field of electric transmission and distribution. The Committee plans to continue its extensive investigations of service outages to communities, and the consideration of what measures can be taken in the future to prevent or minimize such outages.

Suggestions for the most efficient use of substitute materials and methods, during the present period of shortages, will also be prepared and disseminated by the committee, covering the entire field of transmission and distribution of power. Methods which may lead to the improved selection and training of employees for jobs in these fields will also be investigated.

The standardization of equipment used in both the construction and operation of a Transmission and Distribution system will receive intensive study, as will the possible measures for prevention of corrosion to cables and structures.

Possible improvements in design and construction of overhead and underground systems, for maximum economy and reliability, will also be discussed by the committee. Suggestions for the best use of mechanical equipment for construction and right-of-way clearing will be developed in committee meetings and research projects during the coming year.

P. M. LEFEVER
Chairman, Hydraulic Power Committee—Station Superintendent, Susquehanna Electric Co., Conowingo, Md.

Hydraulic Power Committee

The Hydraulic Power Committee, with Paul M. Lefever of The Susquehanna Electric Company serving as Chairman, plans to continue its collection and study of information on the design, technical characteristics, construction and operation of hydro electric power stations throughout the year. The problem of economical, yet efficient, maintenance of this type power station will play an important part in the committee's activities.

An expansion by 50 per cent of the committee's membership during the past year reflects the industry's increased interest in hydro-electric power sources. The membership of this committee has been carefully planned so as to include a representative cross-section of those member companies especially interested in hydro projects, and its work on maintenance and operating problems is expected to be of increasing importance and value to the industry during the coming year.

Meter and Service Committee

The Meter and Service Committee, of which W. G. Knickerbocker of The Detroit Edison Company is Chairman, is planning a revision of the "Handbook for Electrical Metermen," as part of its work during the year. A review of the suggested specifications for standards that have been published to date, with particular reference to MS-4, is also in a prominent place on this committee's agenda.

Indicating and cumulative demand meter scales will be studied, and a survey conducted to determine their acceptance by the industry.

W. G. KNICKERBOCKER
Chairman, Meter and Service Committee — Superintendent of the Meter Department, The Detroit Edison Co., Detroit, Mich.

An investigation of service entrance equipment and meter mountings, in an attempt to improve uniformity and provide better simplification, will also be carried on by the committee. An inquiry into the cause of corrosion of meters and service facilities, and a study of possible preventive measures which may be taken by the electric company, is another important project to be developed during the year by this committee.

COMMITTEES OF THE ACCOUNTING DIVISION

THROUGH the Accounting Division of the Institute, the accountants of the electric utility industry unite to develop and establish accounting principles and methods of importance to the industry, improve accounting techniques, and keep accounting costs within practical limits.

The work of accounting committees is necessarily affected by the comprehensive regulation of accounts and records imposed by federal and state authorities. Much of their work is devoted to efforts to discover the most effective and economical methods of interpreting and applying such regulations. Sometimes industry accounting committees deem it necessary to oppose certain regulatory requirements, and ask for relief for the benefit of the industry.

The nature of accounting committee activities permits close cooperation with the gas industry—a condition unique among EEI committees! Since accounting principles, methods and practices, with comparatively minor exceptions, are similar in both the electric power and gas industries, and since many large public utility companies provide both electric and gas service, the accountants of the two industries find it to their mutual advantage to work together. A very large part of the accounting committee work of the two industries is, therefore, a joint effort.

H. P. TAYLOR
Chairman, Accounting Division General Committee—Vice-President and Treasurer, Wisconsin Public Service Corp., Milwaukee, Wisc.

Accounting Division General Committee

The Accounting Division General Committee, under Chairman H. P. Taylor, of the Wisconsin Public Service Corporation, is the coordinating and directing group of the division. With the Advisory Committee, which consists of past chairmen of the general committee and other senior accounting officers, it nominates the divisions' officers and committee chairmen, decides the primary functional areas for committee work, and recommends or approves suggestions for committee study and work.

This committee also meets at intervals to discuss matters of interest to accounting officers and company executives.

It also appoints subcommittees to make studies which have such broad and far-reaching consequences that they cannot logically be assigned to one of the specialized committees.

Among projects to be undertaken during the coming year by a subcommittee is a study of methods of determining a fair rate of return on public utility invested capital. Another subcommittee will investigate the possibility of establishing a standard classification of provisions in mortgage indentures affecting accounting records and procedures.

General Accounting Committee

The General Accounting Committee, led by Chairman H. B. Hardwick of The Commonwealth and Southern Corporation, is concerned with all matters having to do with the general books and

H. B. HARDWICK

Chairman, General Accounting Committee—Assistant Comptroller, The Commonwealth and Southern Corp., New York, N. Y.

records. The committee plans to study the proposals of the Wisconsin Public Service Commission for condensing and clarifying operating expense accounts as now described in the NARUC-FPC uniform systems of accounts; also, the possible modification of regulatory requirements for preservation and destruction of records, and the theory and practice of internal auditing, in its application to public utility companies.

Other subjects for study to be considered by this committee during the coming year will be the construction and use of budgets, machine applications for general accounting, and some of the special electric utility accounting problems involved in the requirements for license under the Federal Power Act.

The above studies will be carried on chiefly through joint subcommittees with members of the American Gas Association Accounting Committee taking part in the activity.

R. P. KAESSHAEFER

Chairman, Committee on Application of Accounting Principles —Comptroller, American Water Works and Electric Co., Inc., New York, N. Y.

Committee on Application of Accounting Principles

The Committee on Application of Accounting Principles, whose Chairman is R. P. Kaesshaefer, of the American Water Works and Electric Company, plans to marshall the accounting opinion of the industry on the development of accounting principles, conventions and practices, with special attention being devoted to their effects on the electric power industry.

It deals with questions of this sort as they arise, but has none under active consideration at the present moment.

W. E. STURM

Chairman, Customer Activities Committee — Assistant Commercial Manager, West Penn Power Co., Pittsburgh, Pa.

Customer Activities Committee

The Customer Activities Committee, with W. E. Sturm of the West Penn Power Company serving as Chairman, will cover the broad field of customer accounting, which is the largest accounting department in most electric power companies, both in number of employees and the amount of work performed. The committee's activities are closely correlated with those of the AGA's Customer Activities group.

Problems in human relations will be the subject of most of the committee's efforts during the year, rather than procedural methods and mechanical techniques. Three subcommittees on Customer Accounting, Customer Collections and Customer Relations will cooperate with similar committees of the AGA on specific projects listed below. A fourth joint subcommittee on Employee Relations will investigate the relationships between management and the office workers.

Among the projects contemplated for joint research by subcommittees are the following:

Customer Accounting

Accounting records and files.

Developments in office devices and equipment.

Short cuts and other cost reducing ideas.

Prorating of irregular period bills.

Meter reading, which will consist of a comprehensive study coordinating all aspects.

Customer Collections

Collecting through non-company service groups.

Value of credit and collection department to company and industry.

Uniformity in collection correspondence.

Paystation arrangements for customer convenience.

Budget plan for payment of house heating bills.

Customer Relations

Customer attitude toward billing without meters.

Encouraging high quality performance among customer contact employees.

Accounting forms as considered from a customer's viewpoint.

Gauging customer attitudes toward management.

Employee Relations

Selection and training of customer activity employees.

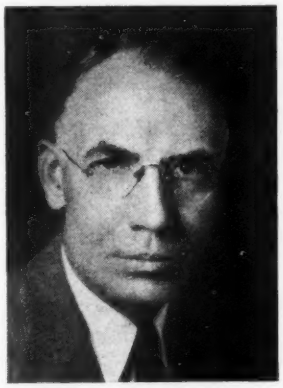
Personnel relations improvements.

Training of supervisors in interpretation of union contracts, and management regulations for employees.

Plant Accounting and Records Committee

The Plant Accounting and Records Committee, with A. J. Mayotte of the Consumers Power Company serving as Chairman, will deal with the accounting problems involved in maintaining the integrity of the utility plant account, and its numerous constituent ledger accounts for permanent utility property.

The elimination of unnecessary records, and reduction in the cost of plant accounting, will be emphasized by this committee in its work. Studies of such methods for reducing the burden of detail as the use of cumulative average pricing for units of mass property, such



A. J. Mayotte
Chairman, Plant Accounting and Records Committee — Secretary, Consumers Power Co., Jackson, Mich.

as poles, wires, meters and other material, are already under way.

Among other subjects scheduled for investigation and report are the methods used to determine construction overheads, distribution of construction labor, and units of retirement in mass accounts. Coordination of plant records with those of the general accounting, operating and engineering departments will be investigated, together with records of salvaged equipment not in service but having potential future usefulness.

The correct use of property records in determination of depreciation charges and reserves will also be considered by this committee.

Depreciation Accounting Committee

The Depreciation Accounting Committee, again headed by A. W. Hastings, of Epsco, Inc., plans to prepare a supplement to a study entitled, "An Appraisal of Methods For Estimating Service Lives of Utility Properties," which

A. W. Hastings
Chairman, Depreciation Accounting Committee—Vice-President, Epsco Inc., New York, N. Y.

was prepared in 1942, and which the committee will bring up-to-date.

Research into the basic theories underlying the methods of depreciation accounting, in particular the assumption that the service value of utility property is equal in each year of its life, will be carried on by this committee during the year. Recent cases of special significance as to the effect of depreciation and depreciation accounting on rate making will be examined and compiled. Illustrations of mortality dispersion, as affecting depreciation reserve requirements, and the development of mathematical estimates of probable service life, expressed in the conventional "mortality

R. S. King
Chairman, Materials and Supplies Committee—Union Electric Co. of Missouri, St. Louis, Mo.

curves," will also be studied by the committee.

Taxation Committee

The Taxation Committee, led for the second successive year by W. S. Alt, of the Union Electric Company of Missouri, will operate chiefly as a medium for the exchange of experiences and ideas among accountants and executives, whose responsibilities now lie in the highly specialized field of tax accounting and the administration of tax regulation. Its meetings, which are largely informal discussions held jointly with the Taxation Accounting Committee of AGA, have often resulted in direct tax savings of considerable sums to committee members and guests attending the meetings.

Problems relating to federal income taxes and the now-defunct Federal Excess Profits Tax will be studied intensively by the committee during the com-

W. S. Alt
Chairman, Taxation Committee —Union Electric Co. of Missouri, St. Louis, Mo.

ing year. A special joint subcommittee has been created to deal with tax laws and regulations having a particularly serious effect on utility enterprises, and to gather facts which may lead to the amendment of such laws.

Another project to be investigated by the committee is the possibility of wider distribution throughout the industry of important studies of specific tax problems.

Materials and Supplies Committee

The Materials and Supplies Committee, again headed by R. S. King of the Union Electric Company of Missouri, studies and reports on systems of purchasing, storing, accounting for, and issuing materials and supplies. Also included in the scope of this committee are purchasing agents' record requirements, salvage of used materials and equipment, and allied functions.

Five subcommittees have been set up by the committee, which will deal with the following subjects:

Purchasing and Stores Accounting

Functional accounting as applied to stores and purchasing.

Truck stocks.

Purchasing Operations

Study of price trends.

Cooperation between stores and purchasing departments.

Increasing the value of the purchasing department to the operating department.

Stores Operations

Methods employed in handling and storing material.

Measures of production in stores operations.

Methods for taking physical inventories.

Servicing overhead trucks and other equipment at warehouse.

Development of standard material descriptions and packaging of materials purchased by electric utility companies.

Salvage

Salvage practices of member companies.

Classification of scrap for sale.

Stores Equipment and Building

New developments in stores buildings design.

Determining the most practical pallet sizes, and the problem of wood pallets vs. metal pallets.

A report on the materials handling show, scheduled for Cleveland early in 1947.

INTER-INDUSTRY COMMITTEES

Matters of mutual interest to the electric utility industry and other industries are dealt with by inter-industry committees, on which EEI has numerous representatives. Joint committees with other national organizations have also been formed for coordinated effort on many problems of wide importance, particularly in the field of standardization.

Among such committees are the Electrical Committee of the National Fire Protection Association, which formulates and revises the code for interior wiring; the National Electrical Safety Code Committee, sponsored by the National Bureau of Standards, which formulates the code for overhead lines; and joint plant coordination committees with the Bell Telephone System, Western Union Telegraph Company and the American Railway Association, which deal with principles and practices for overhead crossings, joint use of facilities and inductive coordination.

Other joint committees have been organized to handle problems of mitigating radio interference, and to coordinate industry activity relative to the use of radio communication. Committees consisting of representatives of EEI and the National Electrical Manufacturers Association consider insulation standards, motor starting currents, standardization of distribution transformers, and preferred voltage ratings for equipment, among other subjects.

In the commercial field, the jointly sponsored Better Light-Better Sight Program and the Electric Water Systems Council draw together the many interests concerned with these fields. Several other joint promotional programs involving different types of loads and electrical appliances are expected as commercial activity increases.

Barney Succeeds Ferguson as Hartford Electric President

Retirement of SAMUEL FERGUSON, at his own request, as president of the Hartford Electric Light Company and election of vice president and general counsel AUSTIN D. BARNEY to be his successor has been announced, following a meeting of the board of directors. Mr. Ferguson will continue as chairman of the board.

MR. FERGUSON

MR. BARNEY

Vice President and general manager KENNETH P. APPLEGATE was promoted to the newly created position of executive vice president.

Mr. Ferguson's service with the company, dating from 1912, has been marked by leadership which has brought him national recognition in the industry and has caused the Hartford company to be cited many times for its progressive policies.

For the directors, MORGAN B. BRAINARD announced that it was with great regret that the board acceded to Mr. Ferguson's desire to be relieved of the responsibilities of the active conduct of the company's affairs and expressed in its minutes, the "great admiration, love and affection we have for him and our appreciation of the tremendous service he has rendered the company."

Since his graduation from Hartford Public High School in 1892, Trinity college in 1896 and Columbia School of Mines in 1899, Mr. Ferguson has followed an engineering, scientific and business career which has covered a wide range.

Prior to joining the Hartford company as vice president in 1912, Mr. Ferguson served for twelve years as consulting engineer and research engineer for the General Electric Company at Schenectady, N. Y., under such scientists

(*Continued on page* 399)

The Public's View of the Electric Power Industry

By Joseph C. Bevis
Opinion Research Corporation

Excerpts from an address before the Indiana Electric Association Annual Convention, French Lick, Ind., Sept. 25, 1946

DOING business today involves more than merely performing an economic function well. The men at the head of a business can be masters of finance, expert in forecasting the balance of supply and demand, competent in producing a high-quality product at an economical price, and still be subject to criticism from the public.

The utility business is no exception. You can provide a lot of jobs, pay high wages, contribute to every fund that comes along, provide excellent service at rates your customers agree are reasonable—and still have the public down on you.

Some business organizations have succeeded in establishing symbols in the public's mind which tend to produce favorable reactions, with resulting favorable influence on the restrictions which are imposed on that company by the State, by unions, or by other organized pressures. Other companies have found themselves tagged with unfavorable symbols, which are a deterrent to public acceptance and often leave them without friends when they are exposed to pressures from the outside.

I don't need to point out to you the advisability—even the necessity—of obtaining a favorable public appraisal of your company and of the entire industry. Electric companies—probably more than any other type of business endeavor—have borne the full attack of the forces of collectivism, and have a special and continuing need to achieve a full public understanding and to justify their right to remain in business.

Opinion polls have achieved their greatest publicity in the field of political prognostication, largely because of the Gallup Poll and the Fortune surveys. However, the greatest use of opinion measurement techniques is in the field of business management problems. Businessmen are turning more and more to scientific measurement of opinion before they make important decisions in the field of merchandising, product design, advertising, labor relations or public relations.

The reliability of a public opinion survey depends largely on three factors: the number of people interviewed; the *kind* or representativeness of the people interviewed; and the ingenuity and experience and skill that go into devising the questioning technique. Contrary to popular impression, the number of people interviewed is the least important of these three factors, once you have obtained more than a few hundred interviews. All the surveys we do depend on a questionnaire which sets up certain categories or frames of reference in which to photograph objectively the intangible stuff known as attitude or opinion. These questionnaires are taken out by field representatives who make personal interviews with a representative cross section of the people. In a national sample, for example, this would mean adequate representation of rich and poor, East, North, South and West, urban and rural, men and women, etc., depending on the requirements of the problem.

After the people are interviewed, the questionnaires are processed by International Business Machines sorting and tabulating equipment. Various calculations are made by the Statistical Department, and then the data are turned over to trained public opinion analysts who interpret the meaning of the figures and prepare the report.

Methodologically, this approach to the study of public opinion has great advantages. It substitutes objectivity for impressionistic observations. It permits the examination of opinions by various groups within the population: Democrats and Republicans, for example; old or young people; persons who go to work by car and persons who use public transportation. Also, it permits cross-analysis of groups to determine cause and effect. For example, what are the attitudes of people who know electric rates have been reduced as compared with the attitudes of people who are not aware of rate reduction? An analysis of this kind can show the effect in terms of over-all good will of making the people aware that their rates have been reduced.

In industries where there is a tangible product to sell, the necessity for keeping abreast of the changes in public preference is brought home forcefully every day. Unlike the utility industry, companies that manufacture and sell individual consumer products are subjected to a public referendum daily. This vote of the consumer public is readily apparent to the management of the company. If the public votes for your competitor's product by buying more of it than of yours, the sales chart immediately dips and you start doing something about it.

In the electric utility industry it is not quite so simple. You have a sales chart which shows the number of kilowatthours used or the number of meters installed, but a decline in public preference is not so readily apparent, because in most areas the customer can't go to a competitor if he doesn't like what you have to offer. Without some objective measurement at regular intervals, it is difficult to keep in touch with your customers' thinking.

All executives of business-managed electric companies are only too well aware of the competition you are facing in the form of public power. *Our studies during the last few years have demonstrated clearly that the American people are essentially fair-minded. They believe heartily in the democratic principles upon which this country was built and, ordinarily, given all the facts in a case, arrive at a sound judgment.*

The electric industry is now in the front-line trenches fighting the battle of free enterprise—fighting for the principles in which the American people, we know from our studies of public opinion, heartily believe. And yet, a large proportion of the people favor government ownership of their electric company. In last year's national survey the figure was 42 per cent in favor of government ownership.

Why is this?

You can rest assured that it does *not* mean the public is becoming more socialistic. As a matter of fact, our studies over the last couple of years have revealed a noticeable swing to the Right in public thinking. What it does mean is that the public hasn't been given all

the *facts*. Some executives may cling to the idea that the facts speak for themselves—that low rates, good service, and a genuine desire to act in the public good are sufficient to guarantee a friendly public.

Let me assure you, gentlemen, that such a conclusion is based on a false premise—and we have many examples in our files to document this. The facts often do *not* speak for themselves. Good deeds and good motives are not enough. In addition to doing the good deeds and acting in the public's interests, you must find a way to make the public *aware* of your acts and your intentions if you are to gain credit for them.

This same principle applies in the industry's controversy with the advocates of public power. If the people are made to understand the facts in the case, public support for business ownership will rise measurably. For example, the American public is receptive to the idea that if government is to compete with private business in the power field, it should do so on an equal basis, including the payment of taxes. In last year's national survey, we found that 50 per cent of the people believe that government projects such as the TVA should pay the *same* taxes that private companies do. Only 34 per cent said government projects should not pay the same taxes, and 16 per cent had no opinion.

Moreover, the public will support your industry's contention that power from government authorities should be sold to private companies. Sixty-seven per cent of the people say the power generated at government dams should not be restricted to cooperatives and to municipal plants, but should also be sold to private companies.

That there is real need to arm the public with the facts in the case is shown by numerous research findings. TVA today receives the approval of a large majority of the public nationally. Moreover this approval is generally highest in the South, which is closest to the TVA.

I think that even its staunchest critics will grant that the TVA propaganda machine is one of the best that has ever been devised. *This high development of the art of propaganda seems to be a characteristic of many of the agencies that are supported by the taxpayers.* And business leadership's weakness in this respect is undoubtedly one of the reasons we still have a government in Washington that is so out of step with the thinking of the business community.

As an example of the kind of propaganda the electric industry is up against, an associate of mine the other day was telling me about a textbook that is being studied by his son who is in the sixth or seventh grade of public school. The book is entitled, "Adventures in Democracy," or something like that. The son brought the book home to study, and my associate saw it lying on the table and started leafing through it. He says it contained six full pages about the TVA. It told what a wonderful thing government power is, how it has brought prosperity to the people in the Tennessee Valley, mechanical refrigeration and electric washing machines to thousands of homes that had had no modern conveniences before, provided scenic lakes and public parks, etc.

But did it say that these dams had been built at the cost of hundreds of millions of dollars taken from the public treasury? Did it say that the school children who were studying the book would in all probability still be paying for these dams when they were grandparents? Did it say that those lakes inundated thousands of acres of fertile bottom lands that never again will produce a crop or contribute to the treasury of the local government?

You can bet it didn't.

In every survey we have made in the electric field, one factor has stood out as having a very important bearing on what your customers think of you. That one factor is rates.

It is our considered judgment, after looking back over many studies of public attitudes toward electric service, that the question of rates is the key to a lot of the difficulty you are experiencing now. I don't mean to imply that if criticism of rates could be reduced to zero, the public would automatically vote 100 per cent for continuance of the present management. The personality of the company, the quality of its service, the friendliness of its employees, and the good it does for the community all contribute materially to public good will. But the rate question *is* of great importance in the picture and is the keynote of public's desire for public ownership.

As evidence, in study after study when we ask the people why they favor government operation of their electric system, they reply, "We'd get lower rates." And last year when we asked a cross-section of the national population which they thought would give them lower rates—public or private operation *—68 per cent said they thought their rates would be lower under government operation.*

And here's a curious thing. Whether your rates actually *are* higher or lower than rates in other territories has little bearing on what the public *thinks* of your rates. People's *impressions* in this case bear little relation to the facts, but it is the impressions that count. After all, people vote and make decisions on what they *believe* to be the facts.

We have seen instances where Company "A" with a relatively low rate receives greater public criticism on this score than Company "B" with a higher rate. The whole thing stems from what the company has done to create impressions in the public's mind.

The electric industry has not yet fully capitalized on the great progress it has made in reducing the cost of electricity to the consumer. Despite the fact that rates have been reduced sharply during the last 15 years or so, when we ask the customers themselves, we find that three-fifths of the people nationally have no awareness of any reduction, and for many individual companies the proportion is even higher. As a matter of fact, one out of every five persons nationally thinks rates are *higher* now than they were several years ago.

In view of the fact that the national advertising, as well as individual company advertising, has been steadily pounding home the idea that rates have come down in recent years, I think it likely that public consciousness of rate reductions has risen. The next national survey for the industry will show whether this is the case. It is quite evident, however, from the emphasis the public places on rates, and the effect of *impression* of rates on the public's attitude toward government ownership, that continued stressing of the theme "more for your money" is thoroughly sound.

It is also evident that, for most companies, it is sound public relations strategy to take advantage of every opportunity to remind the public of what their dollars spent for electricity will buy. These opportunities are not always taken advantage of. I know of one company that has reduced rates several times during the last decade. On some of these occasions, they took a quarter-page or so in the local paper to announce the reduction, and sometimes they put the reduc-

tion into effect without any publicity at all.

How much more effective these reductions would have been in building consumer good will if on each occasion they had included a friendly note with every customer's electric bill stating something to the effect that "on this bill you are getting the advantage of the new rate reduction we have just put into effect," and stating that "we intend to reduce rates in the future even further whenever our operations justify it."

In determining a company's right to remain in business, the people, consciously or unconsciously, weigh the company's *social* contributions as well as its economic contributions. They consider whether it is a good employer, whether it exerts effort and influence in behalf of a better community, whether its motives are good. I am sure that a large majority of electric companies are well aware of this and are doing things every day that will enhance their reputation with the public. But I wonder if more couldn't be done in this direction.

For example, an excellent way of building public good will is through your employees. These people are dependent on the industry for their livelihood although no more so than you are dependent on them for the continued operation of your business. Collectively, they have hundreds of thousands of friends and meet hundreds of thousands of customers whom they can influence to think well or ill of the company and of the industry. Here is a means of communication with the public that is not being completely overlooked but is certainly not being taken full advantage of—an opportunity to widen measurably the number of people who understand what your industry stands for.

In conjunction with the last national survey of the general public, we made a study among electric company employees. This study showed that although employees are considerably more favorable and know more about the electric industry than do the people at large, there are still important minorities who hold views that are hostile to their company's interests and therefore their own interests. For example, 11 per cent of electric company employees actually favor government ownership of their own company. Similarily, 42 per cent of the employees vote in favor of the government's building more dams; and over one-third think the establishment of more TVA's would be a good idea. Employees who hold such opinions as these obviously have not been given all the facts about the industry of which they are a part, and can not be of much help in creating a favorable public attitude.

There's another thing that comes out clearly in our studies of public thinking. A very important element in the public's overall appraisal of a company is its judgment of the *motives* of that company. The public is able to judge tangibles such as coffee, shoes, or automobiles, but it has a more difficult time judging intangibles such as the Wagner Act, or the Paris Peace Conference. In such a situation they fall back on a shorthand judging device—the test of motive. In regard to business organizations this means that if the people feel that a company is *trying* to do the right thing—is doing its level best to give the public a square deal—they are willing to overlook many shortcomings in that company's performance.

In our last national survey, we asked a question that was designed to give us some feel of the public's estimate of the electric industry's motives. The question was this: "Suppose the electric light company's cost of supplying electricity were lowered. Do you think they would be willing to lower their rates to the public, or do you think they would try to keep rates high so they could make more money?"

It is to the credit of your industry that fully 50 per cent of the people nationally believe that if their electric company could operate more economically it would be willing to reduce rates. You thus have the support of one out of every two people on this important issue. But I doubt that any executive in the industry would be completely satisfied with this showing. The fact that 14 per cent of the people have no opinion on this question of the electric company's intent, and the fact that 36 per cent actually say the company *would try to keep rates high* if its costs were reduced, indicates that there is still a big job to do in convincing the American people that business-managed utilities actually have the best interests of the public at heart. But it is very important that this be done if you are to gain effective public support.

One of our interviewers the other day happened to interview a friend of mine. This friend is far to the Right in his political philosophy. He has always voted a straight Republican ticket and is a staunch defender of the free enterprise system. This survey on which he was interviewed was investigating the public's belief in the principles of free enterprise. During the course of the questioning, this friend realized, and so stated his opinion to the interviewer, that it actually made little difference to him personally whether his local electric company was municipally or privately owned. He told me about it and the two of us tried to figure out why he felt that way. We came to this conclusion which, I think, has possibly wide application.

He knows little about his electric company. He knows nobody that works for the company, and can remember no occasion in recent years when he has had any personal contact with a company representative. He remembers seeing no advertising, has heard no talk about the company, and knows only that he gets a bill somewhere between $7 and $10 each month which he pays by check and mails in. It has never occurred to him, consciously, at least, that it takes hundreds of employees and millions of dollars worth of plant and equipment to provide him light and to run his refrigerator and his vacuum cleaner.

At no time in the last several years has he had an interruption in power, and yet this has never been called to his attention. His only contact with the company or its product is when he walks into the room and flicks the switch. The light always goes on. Paradoxically, the fact that it *does* go on serves to make him *less* conscious of the *value* of the service. For, as a general rule, the fewer the interruptions in their service, the more people are inclined to take that service for granted, and the less conscious they are of all the work involved in providing that service for them.

My friend, I am sure, is typical of many others in the nation and provides a good illustration of one of the electric industry's biggest public relations handicaps. That handicap is this: not enough personal contact with the customer.

We see plenty of evidences of this in our surveys. To give you only one—in the national survey only a little over one-fourth of the people said that their electric company had done *anything* in the last year that made them feel it was making a special effort to give good service.

The fact that by the very nature of your business you do not come in contact with your customers poses a real problem. But there is some evidence to indicate that the industry does not take

advantage of all the opportunities for contact that it *does* have. Seven per cent of the people in the nation say they have had *unsatisfactory* dealings with their company—that's *one-fourth* as many as praise the company.

I believe that opportunities for contact with the customer *can be made*. There are many ways of doing this and there is no need to enumerate them here. But I'll wager that good will for your industry would increase considerably if you had a minimum of one friendly contact with each customer every six months.

The people tell our interviewers that one of the criticisms they have of big business is that it lacks the human touch. Big business, they feel, treats individuals as numbers rather than as personalities. It puts profits ahead of humanitarian interests.

And it is quite evident from our studies that the people do not feel well acquainted or close to their electric company. They tend to look on the company as a cold, distant organization. That feeling can be changed—and must be changed if you are to have the public think well of you.

What the people think today stems from lots of things, many of them trivial incidents—a passing reference to the company in a conversation with a friend, a glance at a company ad in the local paper, a smile and a pleasant remark from an employee as the customer pays his bill, a courteous (or an abrupt) answer to an inquiry at the company office. All these things and many others go to make up the public's appraisal of your business and your company.

I know from our extensive association with the members of your industry that there is a solid foundation of character, integrity, and public spiritedness behind your business. The chief difficulty is that a large part of the public doesn't realize this. This may be because you have been a little too modest in the past, because you haven't declared yourself.

So let me say that if you have the real interests of the public at heart, if you are motivated by a genuine desire to be of public service and are not in business solely for profit—then let the people know about it. Tell them what you are trying to do, what your aims and objectives are. People will respect you and have greater confidence in you if they feel you are working for the same goals they want to achieve.

Of course, this is not something that can be published in advertisements or in speeches by executives and then not substantiated by other representatives of the company. Your public relations policies must be known and must be followed by every member of your organization, from the president down to the janitor.

If you do this—if you can instill a true spirit of service in every employee and if you make sure that you not only do good deeds but that you *tell* the people about them—then you are bound to gain increased public confidence.

Meter and Service Committee Meet at New Orleans

W. G. Knickerbocker, *Chairman*

FOR the first time, a meeting of the Meter and Service Committee was held in the South and in New Orleans. At the same time, Oct. 1, 2 and 3, the Committee on Metering and Service Methods of the Association of Edison Illuminating Companies met, both meetings being exceptionally well attended.

The Committees have made a practice of inviting the operating meter men from the locale of the meeting and on this occasion several were present to observe the committee in its deliberations and to make useful comments from time to time. Also, as is customary, the manufacturers were invited to show any developments which were ready for presentation and to receive such committee or member comments as might be appropriate.

A revision of the Handbook for Electrical Metermen was decided upon and sectional committees and an editing committee have been appointed. The last edition of the Handbook, published in 1940, is now out of print, and the decision for a revision was based on the desirability of including new material or practices which might have developed since the 1940 edition.

Two subjects were completed and referred to Headquarters for printing as specifications. These are a "Suggested Specification for Thermal Demand Meter Scales and Markings" and a "Suggested Specification for Phase Shifting Transformers." It is expected that these will be in print in the near future.

There are a number of other items of no less importance being studied and from time to time reports will be made. These studies should result in more uniformity in practices, in reducing the varieties of items used and consequently an improvement of methods and more favorable costs of serving customers.

The general discussions and round table are an important part of every meeting of the committee and should have more time allotted. The program at New Orleans was very crowded and there was too little time for a general round table. It is to be hoped that as the subcommittees get under way there will be more opportunity for an interchange of ideas that means may be found for improving the art of metering.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933

Of EDISON ELECTRIC INSTITUTE BULLETIN, published monthly at Philadelphia, Pa., for October, 1946.

State of New York.

County of New York.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Wilgar Coleman, who, having been duly sworn according to law, deposes and says that he is the Editor of the EDISON ELECTRIC INSTITUTE BULLETIN, and that the following is to the best of his knowledge and belief, a true statement of the ownership, management . . . etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in Section 537, Postal Laws and Regulations . . . to wit:

1. That the names and addresses of the publisher, editor, managing editor and business manager are: Publisher, EDISON ELECTRIC INSTITUTE, 420 Lexington Avenue, New York City; Editor, Wilgar Coleman, 420 Lexington Avenue, New York City; Managing Editor, none; Business Manager, none.

2. That the owners are EDISON ELECTRIC INSTITUTE—not incorporated—trade association; Grover C. Neff, President, 420 Lexington Avenue, N. Y. C.; Gilbert W. Chapman, Treasurer, American Water Works & Electric Co., N. Y.; Mae B. Woods, Secretary, 420 Lexington Avenue, N. Y. C.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

WILGAR COLEMAN,
Editor.

Sworn to and subscribed before me this 24th day of September, 1946.

(Seal) MAE B. WOODS.
Notary Public, Queens County.
(My commission expires March 30, 1948)

Material Cost Trends for Electric Utilities

By R. W. T. Purchas

Middle West Service Company, Chicago; Chairman of the Subcommittee on Purchasing Operations, Materials and Supplies Committee, Edison Electric Institute

Presented at a meeting of the Materials and Supplies Committee, Denver, Colo., Sept. 20, 1946

A QUESTION that has been asked or discussed frequently during the past few months is: "how much have prices gone up?" The answers have been generally erratic because specific products and locations were not stated and the question has been influenced usually by thoughts of the so-called "cost-of-living" products, black markets and other irrelevancies.

This discussion is directed at the following topic: What have been the cost trends from 1939 to date for the principal materials used by the electric utility industry in 1939?

By general price level is meant a composite price index for the principal materials used by electric utilities generally for operation, maintenance and for ordinary service extensions.

The Price Index Formula

The year 1939 has been selected as a base for two reasons—first, it was a prewar year, and second, it may be considered an average price year, prewar. The latter statement is based on the fact that the Bureau of Labor Statistics wholesale price index for "all commodities other than farm products and foods" was 81.3 in 1939 and 81.2 for the years 1935 to 1939 averaged.

General or composite price indices will be determined from 1939 estimated expenditures for the several principal materials used and from individual price indices for those materials for the years 1939 to 1945 inclusive and for August, 1946.

The data for quantities of materials used in 1939 have been taken, in part, from a report filed in October, 1941, by the EEI with the Office of Production Management. Those data were based on estimates furnished by "approximately 61 per cent of the industry—expanded by statistical ratios to 100 per cent of the industry" (including municipal and federal operations but excluding cooperatives). Federal Power Commission data indicate that in 1939 the Private Electric Utility industry produced about 91 per cent and the Municipal and Federal plants about 9 per cent of total kilowatthour output. In order to offer estimates for the privately-owned electric utility industry I have reduced the EEI estimates of quantities by 9 per cent.

From the 1941 EEI report the data collected for materials used for "maintenance and repair" and for "ordinary service extensions" will be used. It should be noted that the report carries the following comment:

> "Many companies had difficulty in furnishing the data on service extensions and from this we infer that the interpretations of the item may not be very consistent throughout. The many stores' accounts are not so kept that the companies can tell, without a prodigious amount of work, what supplies were charged out for maintenance and repair and what went out for ordinary service extensions. Only utilities representing about 43% of the industry gave us data on ordinary service extensions which appeared to have a good basis for the determination."

The writer, therefore, for this discussion, will combine the figures shown in the EEI report for use of materials for "maintenance and repair" and for "ordinary service extensions" and will supplement these data with estimates of his own for other materials of consequence

EXHIBIT A—ELECTRIC UTILITIES INDICES OF DELIVERED PRICES

	'39	'40	'41	'42	'43	'44	'45	Aug. '46
Fuels								
Coal	100	102	112	120	127	131	135	152
Oil	100	101	108	113	113	113	113	139
Gas	100	101	101	102	98	97	104	106
Materials								
Cross-arms	100	107	118	143	143	151	151	180
Firebrick	100	99	103	107	108	111	123	142
Gasoline	100	99	109	124	123	123	121	118
Insulators	100	110	115	115	115	115	115	138
Lub. Oils, etc.	100	100	105	106	106	106	106	114
Metal Products	100	102	105	110	110	110	111	121
Meters	100	100	100	100	100	100	100	115
Motor Vehicles	100	104	111	121	121	121	121	138
Paints	100	104	110	121	124	127	129	132
Poles	100	104	110	116	119	123	124	146
Rubber Goods	100	77	81	97	98	98	98	107
Transformers, Dist.	100	99	97	96	96	96	96	109
Transformers, Power	100	100	100	97	90	90	90	107
Wire, B. & WP	100	101	101	107	108	108	108	138
Composite Indexes of Delivered Prices								
Fuels	100	101	110	117	122	125	128	145
Materials	100	101	103	109	109	109	110	125

Sources of Price Indices

Fuels
Coal: From B.L.S. wholesale prices for Bituminous Screenings, delivered; with certain adjustments.
Oil: From B.L.S. Prices Kansas/Okla. crude, delivery costs assumed; no subsidy payments included.
Gas: From B.L.S. data for consumption and revenue, "Natural gas". Industrial, commercial and electric generation.
Materials
Cross-arms: From estimated average cost of 5'7"- and 8'-Douglas Fir Cross-arms delivered, Chicago.
Firebrick: From B.L.S. index for "Brick and Tile, wholesale".
Gasoline: From B.L.S. prices "Gasoline, tank-wagon, delivered New York".
Insulators: Estimated from market prices.
Lubricating Oils: Estimated from market prices.
Metal Products: From B.L.S. index for "Metals and Metal products".
Meters, Electric: Estimated from market prices.
Motor Vehicles: From B.L.S. index for "Motor Vehicles".
Paints: From B.L.S. index for "Paints and Paint products".
Poles: Estimated from mill, treatment and freight costs, delivered, Chicago.
Rubber: From B.L.S. index for "Tires and Tubes, wholesale".
Transformers, Distribution: Estimated from market data sizes 10 to 500 kva (2400v and 6900v).
Transformers, Power: Estimated from market data.
Wire, Copper: Estimated from C.L. Base prices, average adders and freight: 50% Bare Copper and 50% TBWP copper.

Exhibit B

Electric Utilities Delivered Costs Based on 1939 Consumption

Fuels	'39	'40	'41	'42	'43	'44	'45	Aug. '46
	Millions of Dollars							
Coal	130	132	146	156	165	170	175	198
Oil	22	22	23	24	24	24	24	30
Gas	18	18.2	18.2	18.4	17.6	17.5	18.7	19.1
Materials								
Cross-arms	1.9	2.0	2.2	2.7	2.7	2.8	2.8	3.4
Firebrick	3.1	3.1	3.2	3.3	3.4	3.5	3.8	4.4
Gasoline	12.3	12.2	13.4	15.3	15.2	15.2	14.9	14.5
Insulators	5.5	5.9	6.2	6.2	6.2	6.2	6.2	7.5
Lub. Oils, etc.	4.5	4.5	4.7	4.8	4.8	4.8	4.8	5.0
Metal Products	26.8	27.3	28.1	29.5	29.5	29.5	29.7	32.4
Meters	11.4	11.4	11.4	11.4	11.4	11.4	11.4	13.1
Motor Vehicles	12.3	12.8	13.6	14.9	14.9	14.9	14.9	17.0
Paints	2.7	2.8	3.0	3.3	3.4	3.4	3.5	3.6
Poles	12.4	12.9	13.6	14.4	14.7	15.2	15.4	18.1
Rubber Goods	5.4	4.2	4.4	5.2	5.3	5.3	5.3	5.9
Transformers, Dist.	22.3	22.1	21.6	21.4	21.4	21.4	21.4	24.3
Transformers, Power	7.0	7.0	7.0	6.8	6.3	6.3	6.3	7.5
Wire, B. & WP.	22.9	23.1	23.1	24.5	24.7	24.7	24.7	31.6
	Total Costs—$ Millions							
Fuels	170	172	187	198	207	212	218	247
Materials	150.5	151.3	155.5	163.7	163.9	164.6	165.1	188.3
	Percent Increase over Previous Year							
Fuels	x	1.2	8.7	5.9	4.5	2.4	2.8	13.3
Materials	x	0.5	2.8	5.3	0.1	0.4	0.3	14.1

1939 Estimated Costs—Sources of Quantities and Unit Costs

Fuels

Coal: Consumption estimated at 39,300,000 tons from F.P.C. data; Price from B.L.S. data modified by the writer.

Oil: Consumption estimated at 12,700,000 Bbls for steam & I.C. plants—F.P.C. data; $1.20 per Bbl. for #6 Fuel Oil, 50¢ Bbl freight assumed.

Gas: Consumption F.P.C. data; at 9.5¢ per mcf, assumed.

Materials

Cross-arms: Quantity (EEI); at .90¢ delivered, Chicago, assumed.

Firebrick: Quantity (EEI); at $60.00 M delivered, assumed.

Gasoline: Quantity estimated; at 13.04¢ gal. delivered, N.Y. (BLS).

Insulators: Quantity (EEI); at $1.20 for M & R units; at .30 — service extension units, 2.50 — station type and units (assumed).

Lubricating Oils: Includes auto, plant and transformer oils; quantities and costs, estimated.

Metal products: 1939 estimated cost includes; Pole line hardware (EEI) at 12¢ lb, structural steel, bars, castings, forgings, plates, sheets, pipe and tubes, iron castings, valves (EEI) at wholesale market plus 100% (assumed) for further fabrication; copper bars, shapes, tubing, brass, monel, admiralty metal, lead and misc. (EEI) at wholesale market plus 100% (assumed) for further fabrication; auto and truck parts, auto batteries, storage batteries and meter boxes at writer's estimates.

Meters: Quantity (EEI), at $9.00 per meter, assumed.

Motor Vehicles: Quantity, estimated: at $900 per unit, assumed.

Paints: Quantity and cost estimated.

Poles: Quantity (EEI); at average of 60% SYP, sizes 7/30, 6/35, 5/40, and 40% WRC sizes 6/35, 5/40 and 4/45 (assumed).

Rubber: Includes rubber insulation (EEI), tires, tapes and packings at estimated costs.

Transformers, Distribution: Quantity (EEI); at $10.00 per kva, assumed.

Transformers, Power: Quantity (EEI); at $5.00 per kva, assumed.

Wire, Copper: Quantity (EEI); unit cost as per Exhibit A with 1¢ freight, assumed.

that are not included in the EEI report.

Reference to the EEI report will show that materials are listed by total pounds, meters by total number, transformers by total kva, poles and cross-arms by total number, etc. It has been necessary, therefore, for the writer to make some broad assumptions as to the average unit size of such products and from such assumed sizes to estimate the 1939 total costs.

All estimates offered in this discussion are for the privately-owned utility industry as a whole and it is doubtful whether the cost trends developed will be correct for any individual utility company or even for a group of companies.

Sources of Data

Whenever available, Bureau of Labor Statistics or other recognized price data or indices will be used; otherwise the price indices, 1939 consumption and costs have been estimated by the writer as will be indicated in Exhibit A—Price Indexes and Exhibit B—Costs.

EEI operating statistics for 1939 for the privately-owned electric utility companies indicate that out of $798 million of total operating expense, $428 million were for Salaries and Wages and $170 million for fuel. This discussion relates to materials and supplies, and will, therefore, include the item of fuel just quoted.

Referring now to the EEI survey (1941) on use of materials in 1939 we find 33 classes or types of materials listed. The writer has estimated the consumption of about a dozen additional items of consequence not included in the EEI survey. To keep the discussion within reasonable statistical limits some of these materials have been grouped and their 1939 estimated cost trended to a single price index—major items have been treated separately.

The Price Indices shown in Exhibit A are yearly averages for 1939 to 1945 inclusive and for August, 1946, as estimated at the time this discussion was prepared (in August, 1946).

The costs shown in Exhibit B are all for the quantities of materials used in 1939 and *do not* represent estimates of what the privately-owned electric utility industry actually spent in the years following 1939 for the materials listed or for other materials and services not listed.

Summary of Exhibits A and B

From Exhibits A and B the findings may be summarized as follows:

	Composite Price Index	Cost $ Millions	% Increase Year to Year
Fuels			
1939	100	170	....
1940	101	172	1.2
1941	110	187	8.7
1942	117	198	5.9
1943	122	207	4.5
1944	125	212	2.4
1945	128	218	2.8
August 1946	145	247	13.3
Materials			
1939	100	150.5	....
1940	101	151.3	0.5
1941	103	155.5	2.8
1942	109	163.7	5.3
1943	109	163.9	0.1
1944	109	164.6	0.4
1945	110	165.1	0.3
August 1946	125	188.3	14.1

It may be noted that there were continuous yearly increases in Fuel Costs, principally for coal, from 1939, with a very sharp increase in 1946. Material prices rose in 1941 and 1942 but rose very little in 1943, 1944 and 1945, owing to price control measures in connection with finished products. In 1946 a sharp increase in prices has occurred, most of it within the last two or three months.

The costs for the materials listed are estimated delivered costs of finished products with delivery costs based on the stated assumptions. From these estimates some collateral ideas of costs may be derived.

Transportation Charges Related to Costs

Let us consider first the question of transportation charges. In the Fuel cost of $170 millions (1939) the estimated transportation charges were $91 millions or 52.6 per cent of total cost. At August, 1946 prices the total cost of the same quantities of fuels is estimated at $247 millions of which transportation charges (including federal tax) are $96.3 million or 39 per cent.

For the materials listed in Exhibit B transportation charges on finished products in 1939 were about $19 millions or 12½ per cent of total cost ($150.5 millions) and at August, 1946, prices were about $21 millions or 11.2 per cent of total cost ($188.3 millions).

Prior to shipment of the finished products (fuels and materials) to the utilities transportation charges were paid by the producers of the finished products in connection with fuel, materials and supplies, contract work, etc., purchased from other suppliers. One step further back, additional transportation charges were involved in the shipment of raw materials from the mines to the producers of the basic semi-fabricated materials which ultimately found their way into the finished products.

An estimate of the total transportation costs entering into the prices paid at destination by the electric utility industry for the Fuels and Materials listed in Exhibit B looks about like this:

TRANSPORTATION COST (1939)—$ MILLIONS

	Fuels	Materials
On finished products	90.8	18.9
On prior products*	6.4	10.5
	97.2	29.4
% of Total delivered cost	57.2%	19.5%

* Including products used in furnishing the transportation.

The relative importance of transportation costs may be surprising to some of you.

Wage Factors in Cost Increase

As we have heard a good deal about Wage-Price formulas, etc., the following question suggests itself—"to what extent do salaries and wages enter into the delivered prices of the fuels and materials used by the electric utility industry?"

Using Census data for 1939 estimates have been made of total salaries and wages involved in the delivered costs shown in Exhibit B—with salaries and wages incurred in transportation service estimated separately, as follows:

SALARIES AND WAGES—$ MILLIONS

	Fuels	Materials
In finished products	37.4	32.3
In prior products	5.4	22.7
In transportation service	55.2	16.7
	98.0	71.7
% of Total delivered cost	57.6%	47.7%

The estimates of total transportation costs and of total wages and salaries are necessarily based on numerous assumptions as to costs involved in mining, the manufacture of semi-fabricated or basic products, the manufacture of finished products and the intermediate and final costs of transportation. I spare you the details of such calculations and remind you that broad estimates of this type furnish results that are indicative only, and that no particular degree of accuracy is claimed by the writer.

Cost Components in Price Rise Estimates

The reasons for making these estimates of the Transportation and the Salary and Wage components of delivered costs is to give you a rough idea of the effect on delivered costs of general changes in the unit costs of these components. I believe it advisable, although probably not necessary, to utter a word of warning as to estimating price movements from only one element of cost such as Salaries and Wages.

Let us take one example—Coal—and compare the following:

	Percent Increase 1939 – 1945	
(a) Mine hourly earnings	43.3%	(B.L.S.)
(b) Equivalent labor cost in coal	28.2%	(Census)
(c) Other costs, taxes and profits	39.2%	(d less b)
(d) U. S. average mine realization	67.4%	(Bur. of Mines)
(e) Cost to utilities, at mine	89.0%	(our estimate)
(f) Cost to utilities, delivered	35.0%	(Exhibit A)

In 1939 Electric utilities were buying bituminous screenings in general below the published prices which accounts in part for our estimate of an increase in cost at the mine of 89 per cent as against 67.4 per cent increase in average United States mine realization in 1945. In 1939 about half of the mining companies were operating at a deficit—then came minimum prices, maximum prices and profit control (OPA) which accounts for the 39.2 per cent (Item c) increase to cover other costs, taxes and profits.

The point I am trying to make by this single example is that it is dangerous to estimate price movements only by wage-scale increases which according to the figures just given would account for only 28.2 per cent out of 89.0 per cent total increase from 1939 to 1945 in the cost of coal, at the mine, to the electric utility industry. It is obvious also, that a wage increase has a greater effect on prices in the coal industry with a Salary and Wage component of about 65 per cent than in the industries producing the materials in Exhibit B for which the composite Salary and Wage component was about 25 per cent (1939 Census). It must be remembered that there are

(*Continued on page* 397)

Customer Relations

'Th' Goblins'll Getcha!

By W. E. Sturm

Chairman, Customer Activities Committee, EEI

The first of a series of articles to be contributed by the Customer Activities Committee, EEI

DO you realize that there are TWO nation-wide electric company advertising campaigns?

You are entirely familiar, of course, with the radio and press programs of the "electric light and power companies." The other, which you may have failed to notice, is an unsponsored series of radio and press releases originating with radio comedians and newspaper cartoonists.

The utility-sponsored program, with its theme of "better service from business-managed utilities" is opposed by the radio and press gag men who stress the "futility of dealing with a utility" (Fibber McGee). Their theme is invariably the same—the threat of disconnection of service for non-payment.

Fibber McGee and Molly devoted an entire half-hour program to the "no-light" situation, while on a rival network, at the same time, the electric utilities were telling a smaller audience the advantages of "the American way."

Jiggs, of "Bringing Up Father" fame, spent an entire Sunday vainly trying to find someone to accept his bill payment so that he would be spared the disgrace of being cut off, but finally had to return home where Maggie served a cold dinner by candle light.

Just recently the Kingfish stopped the show when he told the audience how not only his refrigerator, but he himself, had been "defrosted" by the electric company because he had not paid his bill.

On October 14, there appeared in the Nation's press a syndicated cartoon, "This Funny World," showing an average American family viewing a candle-lit Colonial movie scene which prompted the young daughter to say: "Didn't THEY pay their electric light bill EITHER, Mommy?"

"Didn't THEY pay their electric bill EITHER, Mommy?"

What is the meaning of all this?

In the first place, it shows that the American people will laugh at even the most serious things in life—and once you have become used to electric service, going without it is really serious. (Ask the man who lives in Pittsburgh.)

Secondly, and far more important, it reveals a widespread conception of the utility having goblins behind every pole, pliers in hand, ready to disconnect customers at the drop of a discount date.

How did our customers get that way? Certainly the very small percentage of customers who have had their service turned off did not create a national feeling.

Even though none of the radio comedians or cartoonists has had to work in the dark, if he was ever a little slow in paying his bills, perhaps he received a "polite" reminder that if payment was not forthcoming on a certain date—"we MAY be forced to discontinue service." Any customer receiving such a notice and realizing that he cannot go elsewhere to buy his service, knows that it is not an idle threat. As a result, either consciously or subconsciously, he has developed a FEAR of being without service.

Who knows but that this one fear may be at the root of such bad public relations as do exist? Wendell Willkie believed that there lurked in the memory of every utility baiter the recollection of an unfavorable utility contact or an irritating company policy.

Perhaps many customers would not think that their rates were high if their

(*Continued on page* 400)

National Farm Electrification Conference Proves Outstanding Success

Permanent Association Organized by Delegates to Continue Conference on Annual Basis

OVER 400 representatives of agricultural colleges, extension service agencies, farm equipment manufacturers, REA cooperatives and power companies attended the National Farm Electrification Conference, which was held in Chicago on Nov. 7-8. The meeting, first of its type in which so many groups were represented both as sponsors and in the audience, voted to continue the Conference on an annual basis, and organized a permanent association to act as the sponsor.

Hassil E. Schenck, President of the Indiana Farm Bureau, Indianapolis, and a director of the American Farm Bureau Federation, was elected Chairman of the new organization. George W. Kable, Editor of *Electricity on the Farm,* was elected Vice-Chairman, and Russell Gingles, of the National Electrical Manufacturers' Association, Secretary-Treasurer.

The profitable utilization of electricity on the farm, both in raising farm living standards and improving farming methods, was the theme of the Conference. The program centered upon providing agricultural leaders and others with information for transmission to farmers, on the know-how of taking full advantage of time and labor saving devices to advance economic and convenience standards in rural areas.

Organizations participating in the Conference included the American Agricultural Editors Association, American Farm Bureau Federation, American Institute of Electrical Engineers, American Society of Agricultural Engineers, American Society of Mechanical Engineers, American Washer and Ironer Association, Edison Electric Institute, National Association of Farm Water Supply Manufacturers, National Electrical Contractors' Association, National Electrical Manufacturers' Association, National Electrical Retailers' Association, National Electrical Wholesalers' Association, and the National Wholesale Farm Equipment Distributors Association, Inc.

George W. Kable served as Chairman of the Conference, with Truman E. Hienton, Head, Division of Farm Elecrification, U. S. Department of Agriculture, acting as Vice-Chairman. Roy W. Godley, of EEI, was the Secretary.

Morning Session, Nov. 7

Opening the Conference, Chairman Kable emphasized the utilization of elec-

Representatives of agricultural colleges, extension agencies, farm equipment manufacturers, power companies and REA cooperatives attending the National Farm Electrification Conference pause for the photographer.

tricity theme and pointed out that, "Unless the farmer specifically, and agriculture generally, profit from the use of electricity on farms, no one will profit." The extension of electric lines to farms would not be discussed, he said, explaining that "This is a job that is being done by private utilities, and by Government loans to farmers through the REA."

The Hon. Dwight H. Green, Governor of Illinois, in an address prepared for delivery to the Conference, said that the nation is entering upon what should be an era of unprecedented progress in agriculture. The first phase of rural electrification, that of extending lines through rural areas, is well along toward completion, the Governor said, adding that "It is proper that authorities in this field turn more of their attention to the next phase, that of finding new and improved uses for electricity on farms."

The tasks of research, education and salesmanship in increasing profitable uses of electricity on farms are of a long range character, and must be pursued consistently over the years, Governor Green continued. "This calls for cooperation between agencies of government and private business, for both share the responsibility for this work," he stated.

Funds provided by utility companies for agricultural experiments conducted at the University of Illinois have done much to hasten the expansion of rural electric service in the state, the Governor said, and cooperation between educational institutions and industrial organizations is expected to continue.

Agents of the extension service have continuously taught the numerous advantages and profitable uses of electricity on the farm and in the home, through meetings, demonstrations, tours, exhibits, radio talks, bulletins and press articles, the Conference was told by Dr. H. C. Ramsower, Director of the Agricultural Extension Service, Ohio State University.

"The extension service has preached a philosophy of 'let the machine do the work,'" Dr. Ramsower said. The service recommends initial wiring installations on farms that will permit large expansion in the use of current, and will continue to demonstrate the use of new and improved electrical equipment that can save time and reduce work for the farmer.

Marked increases in farm consumption of electric current have been noted, he remarked, adding that some authorities predict that the average monthly use of electricity per farm will reach 250 kwhr within five years, and 500 within 10 years.

The Farmer's Wife—$69,000 Partner

The cooperative farm wife is worth exactly $69,000 to her husband in his business, Gertrude Dieken of the *Farm Journal* declared. This figure, according to Miss Dieken, was established by scientists at the University of Minnesota. "The farmer will be better off if he relieves his wife of unprogressive duties, so that she may have a chance to concentrate on that $69,000 worth of cooperativeness," Miss Dieken said.

However, in too many cases the farm homemaker has not been considered as a business partner, even by her husband. And this, Miss Dieken said, explains why farmers faced with a choice of electrifying either production or home equipment have usually selected the machinery used in farm production.

Studies of the work actually performed by the farm wife show that a typical dairy-farm housewife washed 1509 lb of clothes during a 13-week test period. This homemaker carried 4¾ tons of water, and spent 57 hr in her laundry, during this period. After electrical equipment and running water were installed, for a second 13-week test period, the family's laundry required less than 24 hr of her time, Miss Dieken declared.

The proper use of electrical equipment will not only save farm women from the expenditure of tremendous amounts of physical energy, but will also revolutionize living for the entire family, Miss Dieken said. The homemaker's physical routine, her spirit and outlook upon life, and her value to society will all be greatly improved, the speaker concluded.

Electrical Specialty Dealer's Farm Market

"The greatest single job facing the electrical industry today is the organization of a complete, constructive and continuing program, to sell electric service and products to the farm," Charles G. Pyle, Managing Director of the National Electrical Wholesalers' Association, New York City, advised the Conference.

The key man in this task of reaching and educating the farmer is the electrical specialty dealer, he declared. Many trained dealers of this type have long been active in the rural market, and thoroughly understand the farmer's needs for equipment. Their ability to install and service the products sold promise the farmer practical assistance in installation and servicing problems.

In addition, the electrical specialty dealer can do a thorough job of education on the comparatively high priced equipment that performs the most effective service in farm operations, Mr. Pyle said. The dealer has developed his own financing plans, which are best suited to local conditions.

Since the specialty dealer is the retailer best equipped to reach the farm market successfully, according to Mr. Pyle, the industry should assist him with sales training courses, promotional materials and other sales aids.

C. H. Lang, Vice-President of the General Electric Company, Schenectady, New York, closed the morning session with the presentation of a motion picture entitled "More Power to the Farm," which outlines the plans of his company to increase the value of farm electrification to the farmer.

Afternoon Session, Nov. 7

"If the farmer does not have good wiring, he is probably paying for it anyway, in power losses, inefficient performance of equipment, and limitations on more widespread and profitable uses of electricity," William A. Ritt, Secretary-Manager of the North Central Electrical Industries, Minneapolis, Minn., declared in his address on what constitutes good farm wiring.

Electric Industrial Processing on the Farm

In planning a farm wiring system, he continued, the farm must be considered as an industrial plant, or a production and processing plant for food, feed, seed, textile materials or other products. The greater the degree of processing performed on any farm, the greater is the return in farm income, he explained, and the wiring system must make allowances for processing machinery which will be added in the future.

With the growing use of electrical equipment of higher current capacity, farmstead wiring standards established as recently as 10 years ago have already grown inadequate for many farms, Mr. Ritt said. The Handbook of Farmstead Wiring Design presents an advanced industry-wide approach to good farm wiring, he declared.

Dr. W. T. Spanton, Chief of the

Agricultural Educational Service of the U. S. Office of Education, said that adequate training of farm youth and adults in the farm shops of vocational agricultural schools can be a marked factor in the future extension and use of electricity on the farm.

The widespread use of electricity on the farm will require educational programs to assist farmers in their adaptation of farm processes to electricity, Dr. Spanton said. The location of transformers and service entrances, types of wiring, provision for future expansion, selection of lighting equipment and other farm and home appliances are among the subjects in which instruction will be provided by the 7500 Departments of Vocational Agriculture, located in schools and colleges throughout the country, he said.

Teaching Electric Power Uses to Farm Students

P. T. Montfort, Research Associate of the Agricultural Engineering Department, Texas A. & M. College, described the need for in-service training in farm electrification for extension agents, vocational teachers and personnel of other educational agencies concerned with improving farming and living standards in rural areas.

Only a very few of the personnel now in service or to be employed in the future possess the basic training and experience necessary to guide the farmer and his family in fully realizing the benefits of electric service, Mr. Montfort said. The training program that is indicated to be necessary, he explained, can be met by courses to be offered by agricultural colleges, training meetings to be held regularly in the field, and state or regional conferences.

These training programs, Mr. Montfort declared, will be designed to familiarize agricultural agency personnel with the design, construction, installation, operation and service of the various types of electrical equipment used on farms in their respective areas. Basic courses should be provided for newly hired men and women, and continuous refresher-type programs will be later found necessary, he said.

Sell the Farmer Useful Electricity

Facts and figures concerning the electrical equipment offered for sale to the farmer will do little good, unless they strike a responsive note among the list of objectives which the farmer has in mind, the Conference was advised by E. H. Schriefer, of the Sales Analysis Institute, Chicago. Slow progress in selling the farmer may be accounted for by the fact that the prospective purchaser was trying to reconcile a sales talk with his own needs, the speaker declared.

"Unless the farmer can see how your ideas and your products can help him attain what he wants from life, he is not interested. You must be sure that he clearly understands how your equipment can help to make a profit, reduce physical work, get his stock to market quicker or reduce chore time," Mr. Schriefer concluded.

Morning Session, Nov. 8

The importance of farm electrification to the national welfare warrants the organization of a permanent association, whose activities would be devoted entirely to the subject, and in which farm equipment manufacturers, agricultural extension agencies, educational institutions and power suppliers would be represented, F. T. Whiting, Vice-President of the Westinghouse Electric Corp., Chicago, urged in his address.

This proposed association would correlate all data on the most efficient applications of electricity on the farm, and would develop new electrical equipment to increase farm production. The organization would act as a clearing house in collecting and disseminating information to help the farmer towards a more efficient use of electrical equipment. Mr. Whiting continued.

Better understanding by the average farmer of how electricity can do a wide variety of production jobs on the farm is sorely needed, the speaker explained. A vast educational job remains to be done by the electrical industry and others concerned with improving farming standards, Mr. Whiting said.

Farm Research for Wider Electric Power Applications

The place of farm electrification research in agricultural research was described by Harry J. Reed, Dean of the College of Agriculture, Purdue University, Lafayette, Ind., who said that research in this field falls into three categories: the study of agricultural production operations to establish design requirements for equipment to mechanize specific tasks; then, the actual development of the equipment indicated to be needed; and last, utilization studies of the machinery which includes observation of its performance in the field, and search for additional uses.

Research into farm electrification has been carried on at Purdue for over 20 years, Mr. Reed said, and has resulted in numerous electrical applications now in practical use on the nation's farms. Funds were provided by the public utilities of Indiana to encourage the development of farm electrification on a sound and practical basis, he explained.

The basic objective of all research is the improvement of living and farming standards of rural people, Mr. Reed said. However, each research project is specifically aimed at either the reducing of time and labor required for chores; increasing farm production; improving methods of handling and processing farm products; more extensive processing of such products on the farm or in rural areas, and raising of living standards.

Proposes Utility Agricultural Development Department

Soil conservation, dairy herd improvement, livestock breeding programs, agricultural research and methods for improved handling of farm products are among the ways in which the power supplier can aid agricultural development in his territory, A. C. Spurr, President of the Monongahela Power Company, Fairmont, W. Va., said in a speech prepared for delivery to the Conference. In Mr. Spurr's absence, the address was delivered by C. H. Leatham, Vice-President of Monongahela Power Co.

The power company should establish an agricultural development department to work with and aid other agencies that have these same objectives in mind, Mr. Spurr said. This department should be separated from the regular commercial departments, and should operate solely in the interests of improving agricultural standards. A well balanced agricultural development program is the best insurance possible against loss for the power supplier, the equipment manufacturers and the farmer himself, Mr. Spurr declared.

The desirability of college students of agriculture and home economics receiving training in farm electrification was outlined to the Conference by N. D. Peacock, Vice-Dean of the College of Agriculture, University of Tennessee, Knoxville, Tenn. Significant changes in agriculture, such as the growth of electrification, should be promptly reflected in the courses of study at institutions which are training the future leaders of agriculture, he said.

Such courses in farm electrification must be adapted to the local needs of

students, Dean Peacock advised, and should constantly be revised in the light of frequent changes and improvements in the field.

Rural Press and Radio for Electrification Publicity

Dr. Gladys Gallup, Chief of the Division of Studies and Training, Extension Service, U. S. Department of Agriculture, stressed the importance of using the local newspapers and radio stations in getting to rural people the information needed on farm electrification.

Official surveys show, Dr. Gallup continued, that 70 per cent of all farm families take newspapers. The rural newspaper, she said, is an important factor in the lives of its readers, and is the best medium for educating the community.

Over 80 per cent of all farm families now have a radio, in working order, and value it highly, both as a source of news and information, and for entertainment, according to Dr. Gallup.

Demonstrations of new equipment build local confidence, provide evidence of good farming practices and furnish field data, she continued. Another excellent educational method cited by the speaker was the home and farm visit, which can establish a more intimate relationship between the representative of the power supplier or manufacturer, and the farmer, and is invaluable for securing detailed information of the individual farmer's problems.

"Farmers recognize that electricity can do many jobs on the farm more effectively than any other type of power. They believe that no single factor will so quickly raise the physical standard of living on American farms as will the proper use of electricity," the Conference was told by R. B. Corbett, Secretary-Treasurer of the American Farm Bureau Federation, Chicago.

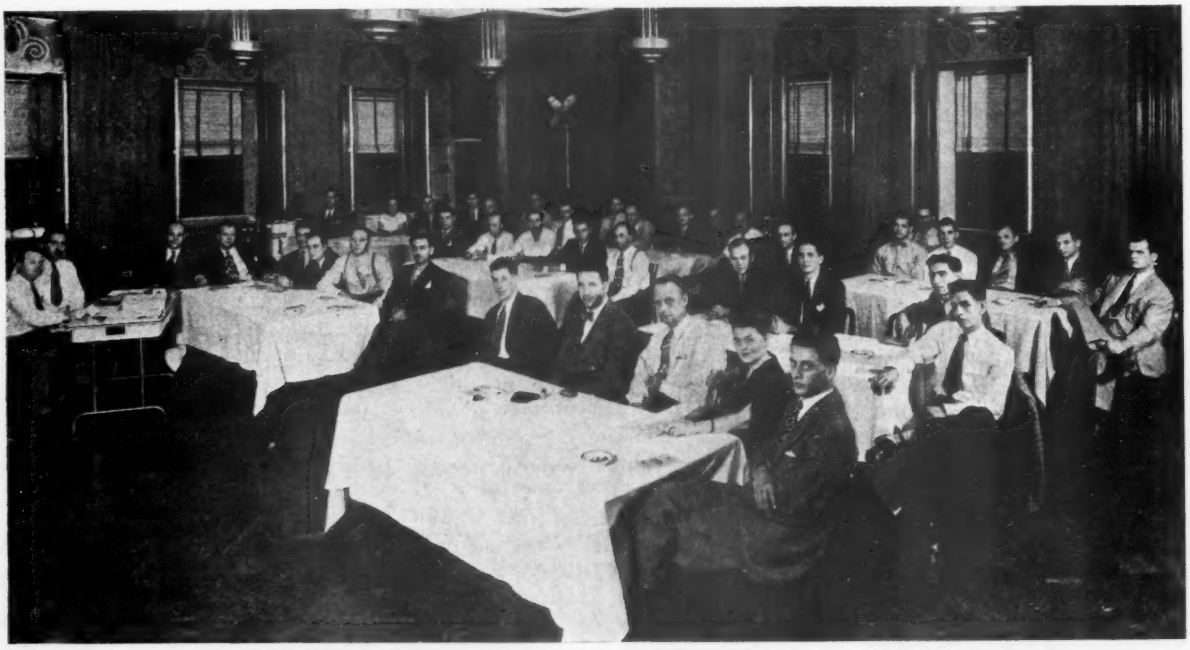
The problem, according to Mr. Corbett, is to get the new developments in electricity into use on the average farm. He stated that his organization is ready to support any plan that will help to bring this about.

Farmers are especially interested, Mr. Corbett said, in those new applications of electricity for farm use in the production and marketing of food, feed and fiber crops.

Future Plans

The Conference, in the opinion of those attending, was an outstanding success, and filled a long felt need in providing an opportunity for free interchange of ideas among those concerned with farm electrification. The discussions from the floor which followed each address were enthusiastic, and in many cases would have been continued long past their allotted time.

While the details as to the place, date and program of the 1947 Conference were left to the officers of the new organization to decide, one resolution was passed by the Conference. The Chairman was requested to bring to the attention of the Secretary of Agriculture that a sum of $250,000 be provided for research into farm electrification problems by the Department of Agriculture during the next fiscal year.



DEALER SALESMEN COMPLETE EEI SALES TRAINING COURSE IN CLEVELAND

Thirty-five salesmen, representing 25 department stores and appliance retailers in the Greater Cleveland area, completed the Edison Electric Institute's Sales Training Course, as sponsored by the Electrical League of Cleveland, on September 11th. The 10-week program employed the EEI Basic and Residential Courses and stressed electric range and water heater sales methods, tying in with the League's promotional campaign on these appliances.

While this was the first course presented for retailers, five groups, including wholesaler and utility salesmen, had received the same training earlier in the year. Attendance held up well throughout the course, according to the League, and store executives, as well as salesmen, were enthusiastic about the course.

On-the-Job Training for Veterans of World War II

By C. L. Derrick

The Hartford Electric Light Company
Hartford, Connecticut

Presented before the Electrical Equipment Committee, E.E.I., at Swampscott, Mass., Oct. 4-5, 1946

WHEN OUR chairman of the Operating and Maintenance Division circularized certain members of the committee requesting any items of general interest on the training of operating personnel, we suggested that our program of On-The-Job Training might be worth a brief report to the committee.

As you all undoubtedly know, Public Law 346, commonly known as the "G. I. Bill," made extensive and elaborate provisions for assisting the returning veteran to "catch up" on his civilian job by a government financed, state supervised program of training on the job. The exact procedure for inaugurating such a program was left rather vague by the wording of the bill and originally no limits were set as to the ultimate job for which the veteran might be in training. The confusion which resulted was undoubtedly responsible for many companies' deciding not to attempt participation. In addition, it was readily apparent that in those companies where the operating employees were organized in formal unions or brotherhoods, complications in pay rates, seniority, etc. were bound to result.

However, not having some of these complications in our company and feeling that our returning veterans were entitled to a reasonable attempt to follow the provisions of the G. I. Bill, the management decided to explore the possibilities of carrying out the training program. We all recognize that the main incentives for participation in the program by the returned serviceman were the increased compensation to be provided by government funds plus the opportunity for additional education. Consequently, when a new regulation was issued early in August setting a ceiling of $175 per month for an employee without dependents and $200 per month for those with dependents as a total maximum including both job pay and extra government compensation, one of the incentives for a great majority was eliminated. In view of this situation, there does not appear to be the original justification for describing our experiences with the program and we have therefore omitted considerable of the detail which otherwise might have been presented.

Getting Courses Started

The G. I. Bill provided for State supervision and certification for the On-The-Job program. The first step was to get together with the Connecticut State Department of Education and work out a plan which would receive the approval of that agency. Facilities for appropriate night schooling are somewhat limited in the Hartford area and the schools that were available were facing the national problem of over capacity registrations. Due to the nature of our business, the most logical source of job training was the Hartford branch of the State Trade School. Several conferences were held with the directors of this school before satisfactory arrangements could be completed.

A large majority of our trainees required basic schooling in elements of electricity and related subjects, and the trade school was not equipped to provide the instructors required to handle the large group. We therefore worked out a plan where two of our competent supervisors, with some previous teaching experience, were added to the trade school personnel as temporary instructors on their payroll to handle these classes. This arrangement has the very definite advantage of having the instructors intimately familiar with the company's requirements. Other courses arranged for at the Trade School were Theory of Heat Transfer and Balance, and Theory of Mechanics. At other local night schools, the following courses were found or made available for the program:

Purchasing and Stores
Elementary Accounting
Brazing and Welding
Structural Drawing
Photography and Blue Printing

These arrangements were completed and State certification granted by about the first of March, 1946.

Company Policy Outlined

By the middle of March, the matters of policy had been determined and the following information was sent out to all employees of the Company:

"The 'G.I.Bill' authorizes 'On-The-Job Training' programs as part of its educational provisions for Veterans of World War II. In order to permit our returning veterans to take advantage of these provisions and to make up lost training due to absence in the armed forces, the Company is setting up an 'On-The-Job Training' program. It was first necessary to become an 'approved company' and our proposed program has been approved by the State Apprenticeship Council and the State Board of Education.

"There will be cases where the nature of an individual's work is such that it does not offer an opportunity for 'On-The-Job Training.' It is probable, therefore, that some jobs and some individuals cannot participate. Also each separate job training schedule has to be approved by the State authorities before the Company can certify it to the Veterans' Administration. These schedules as set up and approved will be made known by the Department Heads.

"It is hoped that for some jobs the program will start the first week in April, and that schedules for other jobs will be set up as rapidly thereafter as possible. All veterans have to file certain information with the Veterans' Administration before becoming eligible for any benefits under the 'G.I. Bill,' or any 'On-The-Job Training' program. Please read the notice posted herewith setting out these requirements and consult the

AGREEMENT FOR ON-THE-JOB TRAINING

I, _____,
a full-time (temporary) employee of The Hartford Electric Light Company, agree to take the On-The-Job Training course for the job of _____
in accordance with the On-The-Job Training Program of said Company, a copy of which is attached hereto, said Training Course being described in an outline approved by the State Department of Education, which is also attached hereto. If accepted, I agree to abide by the provisions of said Program. It is understood that the training term begins on the date of acceptance and continues until satisfactory completion of the course as determined by the Company, or the termination of the course as provided in the On-The-Job Training Program statement. Nothing herein is to be construed as changing the temporary employment status of any such employee, nor to assure any employee of employment in the job which is the objective of said course, nor in the compensation at the termination of this course being equal to the wages then paid by the Company plus the compensation which I am entitled to receive under the G. I. Bill of Rights. My date of birth is _____

The Hartford Electric Light Company, by its acceptance below, agrees to provide the training set forth in the statement applicable thereto hereto attached as heretofore approved by the State Department of Education subject to the On-The-Job Training Program provisions hereto attached.

Credit shall be given to the employee for prior experience in On-The-Job work for _____ hours.

Date _____

_____

ACCEPTED this _____ day of _____ 19 _____

THE HARTFORD ELECTRIC LIGHT COMPANY
Employer,

By _____

Its _____

APPROVED BY CONNECTICUT STATE DEPARTMENT OF EDUCATION

By _____

Fig. 1

Form of agreement between the veteran, his company and the Connecticut State Department of Education for On-The-Job Training under the provisions of the G.I. Bill of Rights.

AFFIDAVIT OF THE HARTFORD ELECTRIC LIGHT COMPANY TO ACCOMPANY CERTIFICATE OF ELIGIBILITY AND ENTITLEMENT

The Hartford Electric Light Company, acting herein by _____, its Vice President, hereby certifies that:

1. The Company has established an On-The-Job Training Program for the job of _____ which has been approved by the Connecticut State Department of Education Apprenticeship Council as more fully appears in the Schedule and General Terms filed with said Department of Education Apprenticeship Council which by reference are included herein.
2. The length of training course required for this objective is _____ hours.
3. The educational level of the veteran is high school graduate, or what is regarded by this Company as the equivalent. No credit for prior experience will be applied to this trainee.
4. The trainee, _____, is now receiving a wage at the rate of $_____ per hour, making a monthly wage base upon the standard 40-hour work week, exclusive of overtime, of $_____.
   The wage payable in the objective job, in this case _____, is at the hourly rate of $_____, or a monthly wage of $_____.
5. The Company will furnish the Veterans Administration monthly, on request, a certificate showing the attendance record and the amount which has been paid to the trainee during the month, directly or indirectly, as wage compensation or other income.
6. There is no charge for supplies furnished the trainee. He is required to take a minimum 144 hours of related instructions outside of regular working hours at his own expense.
7. No promise has been made that the trainee will be placed in the objective job upon the completion of his training. This certificate of eligibility is subject to the provisions made applicable hereto by papers heretofore filed with the Connecticut State Department of Education and the Connecticut State Apprenticeship Council.

_____, 1946.

THE HARTFORD ELECTRIC LIGHT COMPANY

By _____
Its Vice President

Fig. 2

Affidavit submitted by the Company to the Veterans' Administration stipulates the terms under which it accepts a veteran for On-The-Job Training.

Personnel Department to obtain the necessary forms.

"Because our program will differ from those set up in other places, and because our veteran employees will benefit in various degrees depending on the end job for which they are in training and their present rate of pay, and because our non-veteran employees may be concerned as to how the program affects them, we wish to make clear at this time the following basic principles of our program:

1. The end job for which a trainee can be in training is limited to the next logical job beyond his present job, for which his present work would naturally help fit him. In no case will 'On-The-Job Training' programs as such be available for supervisory jobs or for jobs where the end job is supervisor.

   The Company cannot certify to the Veterans' Administration that anyone is in training for irrelevant classifications, or for a position that is several steps ahead. For example, a person in the Accounting Department is not training 'on-the-job' to become an electrician.

2. Insofar as the training on the job is concerned, a non-veteran will receive equal consideration with a veteran. No 'end job' or 'end job' pay is guaranteed to any employee who completes his course. Promotion and advancement to higher grade in the future will continue to be made on a merit basis and only when a vacancy exists. No distinction between veterans and non-veterans can be made in this respect.
3. Subject only to the limitations of the ability of the State Trade School or other institutions cooper-

Veterans Administration Regional Office _____
Rehab. Form 1905e (1)

TRAINEES MONTHLY REPORT ON TRAINING
For Schools or Training on the Job (P. . 346)

Trainee _____ Occupational obj. _____
Place of Training _____ Type of Training _____

Date	Abs.	Late	LIST ALL TRAINING ACTIVITIES OR STUDIES, USING LANGUAGE OF TRAINING PROGRAM	No. of Trng. Item	Com-plted	Hours Spent	Qual-ity
1							
2							
3							
30							
31							

What things in your training present difficulties?

Are you satisfied with your progress?

Month ending _____ Veterans Signature _____

Fig. 3

Form used in monthly report of progress made by the veteran in On-The-Job Training from which the Veterans' Administration determines the standing of the veteran in the program.

ating with the Company to carry the load, non-veterans may participate in the program. Non-veterans, of course, will not receive any benefits from the government. The Company, however, will reimburse the schooling expense, if any, of a non-veteran employee taking the prescribed outside courses upon satisfactory completion of same.

4. For all training courses a certain amount of outside schooling will be required by the Company. For jobs that are apprenticable such as electrician, mechanic, etc., the State Apprenticeship Council requires a minimum of such outside schooling to be set up in an 'On-The-Job Training' course for such jobs.

"The Company believes that schooling requirements will be of all-around benefit to the employee. The outside schooling requirements will vary with each job and will fit into and be related to the job. Beginners will not be required to take advanced work, etc. The State Trade School and other local educational institutions are cooperating in every way and every effort will be made to work out reasonable and practicable courses for each job training group. Regular attendance at, and satisfactory progress in these courses is required for continuance on the training program.

"Any employee entering these courses will have to sign an agreement which states in further detail the terms. These agreement forms can be obtained from the Personnel Department. The Company reserves the right to modify or terminate the courses at any time. All questions and inquiries relating to the program should be referred to the employee's Department Head or to the Personnel Department."

It was decided to run the night school classes through June of 1946 and then recess until about October 1st. This would allow the summer months for a review of the plan's operation and provide an opportunity for revisions or adjustments of the program.

Training for an "End Job"

Of the 160 returned veterans in the Company, 110 were enrolled in the program as of July 1, 1946. A breakdown by departments is given below:

Distribution Dept.	34
Manufacturing Dept.	30
Sales Dept.	14
Engineering Dept.	12
Accounting Dept.	11
Lighting & Meter Dept.	5
Purchasing Dept.	3
Conn. Valley Pr. Exchange	1

The "end job" for which this group is in training covers 45 different job classifications with objective rates as determined by a job evaluation study running up to a maximum of $1.55 per hour. The day-by-day work schedule of all employees enrolled in the training program was arranged to give each man the maximum training and experience leading to his "end job" as far as Company operations will permit, and a minimum of 144 hours per year of outside schooling is required for continued certification. Monthly reports of training activities both on and off the job must be submitted to the local office of the Veterans' Administration by each veteran enrolled in the program.

Pay Scales While On-The-Job

Standard Company pay rates are followed in all cases and regular increases are granted as merited without any regard to an employee's status as to the On-The-Job Training program. These rates are filed by the Company with the Veterans' Administration and all changes in rate reported promptly. In this manner the difference between the Company rate and the objective rate of the training program is determined monthly by the Veterans' Administration, as the basis for additional Government compensation. The obvious complexity of this arrangement results in considerable lag in the actual receipt of the Government's compensating payment to the veteran but in the great majority of our cases, these payments are now being made with reasonable regularity. However, you can readily see how certain individual cases may get lost or confused in the complex checking system and these naturally result in dissatisfaction on the part of the individual employee.

There are many forms involved in the setting up and follow-through of the plan. Three of these forms are reproduced herewith as representative samples.

With the advent of ceiling limitations announced in August, referred to earlier in this paper, it appeared that most of our veterans might drop out of the formal program and forego the outside schooling, as extra compensation for 90 per cent of those enrolled would be eliminated. However, we have recently completed a survey of the group on this point and it has been encouraging to find that 90 per cent have indicated that they plan to continue with their classes as originally planned. We are therefore proceeding with the organization of the classes for the coming year and are confident that if the boys will continue with their studies it will be of distinct advantage to the Company in its future operations and to the veteran in his progress and rating on the job.

Claude L. Matthews Awards Honor Employees' Devotion To Duty

THE Claude L. Matthews Valor Awards, offered to electric utility employees for acts of "extraordinary courage and devotion to duty in efforts to maintain important electric service, or to restore service in the shortest possible time," make it possible for executives to see that deserving men and women in their organizations receive fitting recognition, and are an important morale factor among large groups.

The Valor Awards, which were suspended during the war, consist of three cash prizes of $150 each, with accompanying citations and appropriate lapel emblems. Employees of electric companies in the United States, whether privately or publicly owned, are eligible. Awards may be made to individuals or, where two or more employees cooperated in an act of valor, to the group as a whole.

Recommendations for the Matthews Awards must be submitted by a chief executive of the company, and should include a brief statement of the duties with which the person was engaged, a short description of the events that transpired, and an account of the specific deed upon which the claim for the award is based.

Recipients of the Awards will be selected by a group of judges appointed by the Prize Awards Committee of EEI. Factors to be considered by the judges will be the importance of the service affected, and the courage, good judgment, quick action and devotion to duty displayed by the employee.

Awards will be made at the EEI Convention in June, 1947, for acts of valor occurring during the calendar year 1946. Recommendations must be received by the Secretary, Edison Electric Institute, 420 Lexington Avenue, New York 17, N. Y., not later than April 1, 1947. Details of the awards, eligibility and procedure for recommendations are also available from the Secretary.

In-Service Farm Electrification Training

By P. T. Montfort
Research Associate, A. & M. College of Texas

Presented at the National Farm Electrification Conference, Chicago, Ill., November 7, 1946

LATEST available figures indicate that approximately 3,350,000 farms in the United States now have central station electric service. This represents, roughly, 60 per cent of the "occupied" farms in the country. More than 4,000,000, or approximately 75 per cent, of the "occupied" farms either have central station service or are located within one-quarter mile of a low-voltage distribution line.

Plans already announced by the electric industry and the Rural Electrification Administration give assurance that more than 90 per cent of all farms in the United States will have central station electric service within the next five to eight years, or as rapidly as labor and materials become available. Thus, it can be seen that we are rapidly approaching the completion of the tremendous physical and financial task of extending electric service to the farm.

Towards Complete Farm Electrification

In the final analysis, the construction of electric distribution lines into rural territory and the installation of secondary service facilities on the farmstead is but the beginning of true farm electrification. We shall not have complete farm electrification until the maximum possible use of electric service is being made on every farm to improve living conditions in the farm home and to increase the efficiency of productive farm operations.

During the past 25 years, more than 250 different uses for electricity on the farm and in the farm home have been developed through research and experience by the manufacturers, the electric industry, by farmers themselves, by the state Experiment Stations and by various other governmental agencies. New uses for electricity on the farm will be developed continuously through research and experience. Many of these are undreamed-of today. Not only will there be new equipment and new uses, but better ways of operating present equipment and their application will be worked out.

Many of the more progressive farmers have begun to visualize the almost unlimited possibilities for using electricity to eliminate drudgery, shorten hours of labor, prevent losses of perishable commodities, improve quality of products to be marketed, and to increase over-all farm operating efficiency. In general, however, farmers have only a very rudimentary conception of the opportunities inherent in this new force which has been made available to them.

What the Farmer Should Know

If the farmer and his family are to make the maximum use of electric service, they must have:

An adequate supply of uninterrupted electric service.

A farm wiring distribution system to provide the proper amount of electricity at every point on the farm where it may be needed.

Correctly designed equipment.

Service facilities for proper maintenance and repair of equipment. And perhaps most important of all, they must have reliable, practical information on:

a. How electricity can best be fitted into their individual operations—how maximum returns can be realized on the investment.
b. What kind, type, and size of equipment will best meet their requirements.
c. How the equipment should be operated.
d. How the equipment should be maintained and serviced for maximum utility.

I shall limit my discussion to this problem of information. To whom does the farmer look for the answers to his many electrical problems? Indirectly, and for the future he expects the research agencies of the land-grant colleges, the United States Department of Agriculture, the electric service groups, and the manufacturing industry to take the lead in developing new uses and in improving existing methods. Directly and immediately the farmer and his family will look to the local agricultural educational agencies, such as the county extension agents and vocational teachers, to the local representative of the organization furnishing the electric service, to the local wiring contractor; to the agricultural press and to the representative of the dealer from whom the electric equipment is purchased, for the information and advice they need to wisely use electric service.

The responsible leaders in all of these groups today recognize and accept the responsibility of supplying this need. For many years a number of these agencies, notably the electric service companies, the agricultural colleges and the major manufacturers of electrical equipment have been building up specially trained staffs whose entire efforts are directed toward developing a more effective utilization of electricity on the farm.

Prior to the war, as the building of rural electric lines progressed at a rapidly increasing rate, all of the other interested agencies began to expand their service and educational programs.

This entire development was seriously interrupted by the war. Line building slowed down and very little new electric equipment was manufactured. Perhaps the most serious adverse effect was on personnel. Many of the men and women engaged in this work were in the younger age brackets and either served in the armed forces or in essential war work.

Postwar Programs Expand

As peacetime activities are resumed, the farm electrification program is again moving forward at a tremendous rate. All educational, service and sales organizations are being rebuilt or expanded on a scale unthought-of only a few years ago.

It is impossible to tell exactly how many men and women there are today who are in a position to make a contribution to better electrical living on the farm. The total probably exceeds 100,000.

There are more than 6000 County Extension workers including agricultural agents, home demonstration agents, assistants and 4-H Club leaders. In the vocational field there are some 9000 agricultural teachers and at least the same number of home economics teachers

whose classes include farm girls. In addition to the regular departments of vocational agriculture, there are now some 5,000 special vocational training courses, either in operation or in the process of formation, for the agricultural training of war veterans.

There is probably a total of 15,000 men and women employed by some 450 major electric service companies and 900 electric cooperatives, and by other agencies supplying electric service to farms who spend at least part time assisting farmers with their electric utilization problems. Several hundred of these now spend full time on such activities.

It is most difficult to arrive at any accurate estimate of the number engaged in the manufacture, distribution and service of farm electric equipment. It probably exceeds 60,000.

It appears now that we may expect a considerable expansion of personnel by all agencies within the next four years.

The Search for Trained Personnel

We must now recognize a problem which is undoubtedly the most serious immediate obstacle to be overcome in the whole farm utilization program. Only a very few, a fraction of 1 per cent, of those now in service, or to be employed later, have had the basic training and experience necessary to wisely guide and assist the farmer and his family to a full realization of the benefits of electric service.

Without question, the most pressing problem in the field of farm electric utilization today is that of training key personnel. Almost without exception the administrative officials in the Extension service, the departments of vocational teacher training, the manufacturers, the electric service companies and the Rural Electrification Administration are now seriously concerned with the most practical and effective method of executing their training program.

In the analysis of the problem up to the present point, it appears that all factors and conditions have been on the debit side of the ledger. Fortunately we can now make appreciable entries on the credit side. We do have a background of experience in training farm electric utilization personnel, in some instances extending back over a period of 20 or more years. We do have a nucleus of capable, experienced men and women in the field. There are a number who could, with justifiable pride, admit to continuous service of 15 to 20 years or more. We have a wealth of excellent subject matter and teaching aids.

The basic factor to be considered in formulating plans for personnel training is that the men and women to be reached are all presently employed on a full-time basis and the program must be carefully planned to fit into the regular schedule of work with a minimum of interruption and time off the job.

Objectives of Personnel Training Programs

Although the basic fundamentals may be the same, no single type of in-service training program can be designed to meet the requirements of the various educational and sales groups in the farm electrification field. The farm service representatives of the electric service companies and the electric cooperatives who devote full time to educational and advisory work with farm people may justifiably spend considerable time first in basic training programs for new personnel and later in continuous refresher-type programs. These individuals must be thoroughly familiar with the design, construction, installation, operation, and service on all of the various types of equipment and applications used on the farms in their respective areas. They must also be thoroughly familiar with the economic factors, such as comparative performance and operating cost with competitive equipment or methods.

The farm salesman, devoting full time to the selling of electrical farm equipment, is also justified in spending considerable time and effort in becoming thoroughly familiar with all of the details of the application of this equipment to farm operation. This also applies to the specialty salesman in primarily rural territory.

The county Extension agents carry on general educational programs covering the entire field of farming and of farm-home operation. That part of the program directed at adult groups must of necessity be of a broad, general nature involving the basic fundamentals and the general economic factors involved in the application of electricity. In the case of 4-H Club programs with boys and girls there is a need for more specific information and perhaps some skill required in teaching simple wiring practices, the construction of home-made electric brooders or other equipment, and the operation of this equipment in connection with specific 4-H Club activities.

Teachers of vocational agriculture and home economics need more detailed information, perhaps, than do the Extention agents. These teachers work more intensively with smaller groups and will probably spend more time in assisting farmers and instructing farm boys and girls in the selection, care, and operation of specific electric equipment.

Basic In-Service Training Programs

From experience gained during the past 20 years, it appears that there are certain types of in-service training programs which may be successfully utilized by the different groups with certain modifications designed to meet the requirements of each specific group. Some of these might be listed briefly, as follows:

1. Credit courses of three to 16 weeks each, to be offered by the agricultural colleges either in the regular session or in summer school. These courses will be of primary interest to Extension agents and vocational teachers seeking graduate credit. Such graduate studies are being encouraged more and more by administrators in these two fields. A few such courses are now being offered. Additional courses will be added rapidly.
2. Basic farm electrification training schools with four- to eight-week courses, designed primarily for training new personnel employed by the electric service companies, electric cooperatives, distributors, and dealers. These courses may be given under the sponsorship of the agricultural colleges, utility associations, or perhaps by manufacturers with national distribution. They may be jointly sponsored by two or more interested groups.

One state agricultural college, in cooperation with the electric service companies of the state, conducted two such courses of six weeks each during the past spring. Attendance at each course was purposely limited to small groups of 13 to 14 each in order to provide more intensive training. The 27 men completing the course included one representative of a distributor of farm electric equipment, and the Extension farm electrification specialist from an adjoining state. The remainder were employees of the electric service companies who were just starting with the company or being transferred from other activities to farm electrification work. The effectiveness of these schools was extremely gratifying, and they will be

repeated as the demand justifies. A number of other state colleges and utility groups are now considering the inauguration of similar intensive basic training activities.

3. A coordinated series of training meetings held at regular intervals in the field. These may be evening meetings only, or they may extend over a period of one-half day or two or more days each. This type of training meeting is particularly well adapted to the in-service training of Extension agents, vocational teachers, representatives of power suppliers, wiring contractors, dealers and equipment service men. They may be conducted by representatives of the agricultural college, Extension Service, teacher-trainers, electric service companies, electric cooperatives, manufacturers, and distributors of farm electric equipment. In many instances, these schools can be conducted under joint sponsorship and may be attended by any, or all, of the interested groups. They may be designed as basic training schools, or they may serve as refresher courses.
4. State, regional, or national conferences of one to three or more days' duration. These may be sponsored by the state colleges, local utility groups, manufacturers or by other agencies. These conferences, attended by representatives of all interested groups and agencies, offer an excellent opportunity for an exchange of ideas and may, at the same time, provide refresher-type instruction or for the announcement of new developments in the field of farm electric utilization.

Many meetings of this type have been held in the past. Several state colleges have conducted annual two- or three-day farm electrification conferences or short courses for 15 or more years without interruption.

Training Program Instructors Needed

Where can we find personnel qualified to serve as instructors in these in-service training programs? Fortunately, we now have a nucleus of between 200 and 300 men and women thoroughly qualified to conduct such courses. This group will be materially increased within the next few years by those now in training or getting field experience. This personnel, although limited in number for the job to be done, is well distributed throughout the country. The group is composed of men and women in key positions with the agricultural colleges, the agricultural Experiment Stations, the Extension Service, the electric service companies, electric cooperatives, the R.E.A. and manufacturers and distributors of electrical farm equipment. There are enough of these individuals in almost every state to make a substantial start on in-service training programs within a reasonably short time, or whenever local conditions justify it.

Perhaps in no other phase of agriculture is there a more comprehensive supply of well-written bulletins and other reference material suitable for use in training work. There are a number of excellent sound movies, (some in technicolor), sound-slide films and slides either presently available or in production. There is a wealth of special demonstration equipment of proven value in explaining various electrical fundamentals, principles of wiring, and the many applications of electricity to farm and home operation.

Programs Already Under Way

The job ahead in personnel training is a real challenge. There is a need for immediate initiative in establishing training programs with a minimum of delay. A few organizations have already undertaken well-planned coordinated programs. Two of these may be cited as illustrations:

The Farm Sales Committee of the Edison Electric Institute is now releasing to its member companies the first sections of a carefully planned and comprehensive in-service training program. This program includes lesson outlines, text material, a farm sales manual, charts, sound slide films and other teaching aids.

The Agricultural Extension Service, through its national and state offices is now developing an in-service training program designed especially to meet the needs of county Extension agents. An Advisory committee composed of representatives of six or eight state Extension Services, well distributed geographically, met here in Chicago on Tuesday and Wednesday of this week (Nov. 7 and 8) with representatives of the Farm Service Committee of the EEI to make plans for the preparation of program and lesson outlines, lists of reference material, charts and other demonstration equipment which could be used by the various states in in-service programs for county Extension agents.

In conclusion, may I urge that wherever possible the facilities of all interested agencies be carefully coordinated so as to prevent duplication of effort. It must be constantly kept in mind that, although the method of approach may vary slightly between agencies and organizations, there is only one final objective, common to all—that is, that the farmer use his electric service to the best possible advantage.

Publication of the EEI

COMMERCIAL ELECTRIC COOKING AND BAKING MANUAL

EEI Pub. 0-7. A manual prepared by the Cooking and Baking Subcommittee of the Heating and Motor Applications Committee, Commercial Sales Section, Commercial Division, 20 pages. Price $.75 to members and their employees; $1.85 to non-members and foreign countries.

THE intent and purpose of this manual is to supply helpful information for utilities interested in the development of the commercial electric cooking load. This manual represents a start in assembling basic data on the electric cooking and baking business. Effective use of the data contained herein dictates that it be supplemented with reference sheets, visualizers, manufacturers' catalogs and data, and other sales aids.

High load factor and unity power factor are among the desirable features of the electric cooking load, the manual says. It urges utility commercial representatives to stress the actual total cost of cooking, rather than energy costs, for greater success in this field of promotion.

Actual case histories of utility experience in promoting electric cooking and baking are included in the manual, with detailed statistical data on revenue secured per dollar of EAR selling costs, etc.

A section on basic sales data for use by utility representatives lists the advantages of electric cooking to the restaurant operator, the varied applications of electric cooking equipment, and a list of 18 practical sales helps that are available to every representative.

Several architects' drawings of suggested kitchen layouts for different types of food service establishments are included.

An extensive appendix provides data on actual operating characteristics of electric kitchens, calculation of potential merchandise and wiring business and wiring data, among other helpful information.

Appliance Marketing Problems

By H. M. Kelley

Appliance Sales Manager, Frigidaire Division, General Motors Corp., Dayton, Ohio

Presented before the Southeastern Electric Exchange Meeting, at Atlanta, Georgia, November 8, 1946.

THE appliance industry owes much to the effort the electric industry has put forth over a period of more than 25 years in building public acceptance for electrical appliances.

Our industries are dissimilar in most every way, yet our success is entirely interdependent. Without the lowered electric rates and the aggressive promotions you have continually accomplished year after year, the electrical appliance industry could not have achieved the outstanding sales goals that have resulted. And conversely, the electric industry could not have achieved today's domestic average annual kilowatthour consumption, had not the electrical appliance industry continued year after year to build better appliances for less money and to build consumer acceptance for those appliances through hard hitting sales effort.

Many of today's appliances might well be in a very low stage of saturation, affording little volume and profit to the producer, had it not been for the splendid help the electric industry gave in pioneering many of the appliances which today are considered household necessities.

Many of us in this room can remember when our job was to convince the householder that an electric refrigerator was as good as an ice box; and having accomplished that hurdle, we next had to extract $600 or $700 from the prospect and at the same time admit it would probably cost from $4 to $6 per month for electricity to operate it.

Yes, through our cooperative efforts we have gone a long way since that time and we should all be able to derive considerable satisfaction from the contributions we have made to better living in America.

The electrical appliance industry has always needed your help. We in Frigidaire, want to take this opportunity to thank you for the part you have played in building our leadership in the refrigeration industry and to ask that you continue to assist us in building consumer acceptance for less saturated appliances now being offered the public, as well as those newer ones yet to come.

I hope to bring you a realistic report of the appliance outlook and highlight some of the merchandising problems that confront all of us in the immediate future, in the promotion of greater acceptance and ownership of electrical appliances.

What Causes a "Seller's Market"?

Perhaps as a basis for our discussion we should first consider the current situation in the appliance industry. We came out of the war with an unprecedented demand for appliances of every type and kind. While it looked like reconversion of existing plants could be accomplished at a much faster rate than many believed possible, and new plants built and equipped for efficient manufacture, many things have served to greatly retard actual production.

Appliance manufacturers have had to contend with strikes within their own plants. Widespread and prolonged strikes in major industries, such as coal, steel, copper, rubber, shipping, etc., have caused critical shortages of basic materials.

Work stoppages in fabricator's plants have resulted in reduced production of motors and other assemblies. In addition, a spirit of restlessness on the part of workers—no doubt the result of wartime stress and experience—has resulted in a high turnover of labor which has slowed down production by decreasing the average output per worker.

As a result of all these contributing factors, appliance production today is far below the goal which manufacturers set a year ago. Furthermore, there is little to indicate that production levels can be raised sufficiently in the immediate future to make possible a quick reduction in the backlog of unfilled orders. Therefore, it is to be expected that the seller's market which has existed since the end of the war may be prolonged beyond normal expectations.

But let us take a more critical look at this backlog of unfilled orders. It is important for us to recognize that essentially they represent unfilled desires and not unfilled orders. Whether or not these desires will be translated into a firm demand will depend upon the degree of confidence the public will have in the future when that point has been reached. Because of this, it is easily possible that the transition from a seller's to a buyer's market may be more rapid than we would be inclined to think at this time.

Prospects in Rural and Urban Markets

In considering that transition, we should take into account the probability that all types of markets will not react in the same manner and at the same time. The rural market, for example, promises to be stable for some time to come, providing crop prices hold up. The farmer today has more cash, greater assets and lower indebtedness than at any time in recent history. This favorable situation for the appliance industry has been and will be further enhanced by the widespread electrification of rural areas by both private utilities and the R.E.A.

By contrast, the larger urban markets seem to be in a more vulnerable position. Strikes continue to cut into the industrial worker's annual wage; resulting material shortages have caused intermittent lay-offs of workers in countless plants.

Consequently, some of these families probably have had to dip heavily into their wartime savings. Higher prices of food and clothing are calling for an ever larger share of the income of the salaried and industrial worker. These conditions combined with increasing prices of appliances have removed and will continue to remove many such workers from the immediate major appliance market. All of these conditions certainly will affect the sale of appliances and since in a high percentage of families, appliances are not considered immediate necessities, they are certain to feel the brunt of any type of buyer resistance.

There are other equally significant signs. Sales of "E" bonds have fallen off to the point where redemptions are

now in excess of sales. Savings have declined from 29 per cent to 14 per cent of disposable income. Furthermore, a high percentage of the people are not planning to spend their accumulated savings—they intend to hold them as security against the proverbial rainy day and a constantly increasing percentage of appliance sales are being financed.

Regardless of all these factors, a seller's market is expected to continue for some time to come, but this condition will also exist in varying degrees as related to specific appliances.

Consumer Demand for Specific Appliances

In the case of refrigerators, for example, it looks like we will have a seller's market at least until the middle of 1947. However, there is much duplication in dealer's prospect lists, prices are rising, and earnings may be reduced. Therefore, although the outlook today is quite good, the backlog of demand may be reduced so that a buyer's market in refrigerators may arrive sooner than now appears likely.

Some other appliances are already experiencing substantial buyer resistance. Many brands of table-top radios have already entered a buyer's market, with consoles following closely behind. Many brands of vacuum cleaners are in a buyer's market, and "off-brand" merchandise of many kinds is becoming difficult to move. Conventional washers seem to rank between refrigerators and table-top radios, while the true demand for automatic washers at their current prices is unproven because of a lack of sufficient offerings.

The demand for electric ranges is unusually firm, but this demand probably results from a different set of factors. The most important of these is the tremendous growth in public acceptance of the electric range during the war years, as well as a marked acceleration in the interest and promotional effort of public utilities.

We actually are overwhelmed by the apparent desire for electric ranges on the part of homemakers. If we can maintain this interest, if all utilities will follow the trend toward lowered cooking rates and greater assistance in reducing the high cost of installation wiring; and if we can produce more and better ranges, and do all of this while the present consumer interest is there, I am sure we will all be surprised at the high degree of electric range saturation that will be accomplished.

We know we are ready to do our part and we feel equally sure you will do your part in taking full advantage of the electric range opportunity that is here now.

Increased Demand for Electric Water Heaters

The potential market for electric water heaters has greatly improved over the prewar picture. We frankly believe there is going to be good business in this field for some time to come. Here again, another set of factors has been at work improving this market.

First of all, there is an increased appreciation on the part of the homemaker of the need for an automatic source of an adequate supply of hot water. This has been heightened by the shortage of domestic help, which has caused many homemakers to personally handle many more household tasks.

Increased wartime income has created a large market among families who thought they could not afford an automatic water heater, and so contented themselves with make-shift water heating methods for economic reasons.

While the water heater market was very spotty before the war, it is rapidly becoming national in scope. Utilities all over the country either have made, or are making special rates for water heating service, as well as planning to assist in installation expense.

Many utilities are going "all-out" on the promotion of the electric water heater as a load builder. The increased interest of the utilities in both electric ranges and water heaters in many cases seem to arise from the need to off-set the loss of wartime industrial load, plus a better appreciation of the desirability and stability of the range and water heating load.

One of the most constructive steps that utilities can take in promoting the sale of electric water heaters is to standardize their regulations regarding permissible wattages, and other factors governing the installation and operation of water heaters, thereby reducing the production and installation costs of this appliance.

Still another factor, which we believe will affect the water heater market is the automatic washer. The hot water requirements of this appliance are such that an automatic water heater will contribute greatly to the satisfactory operation of the washer. Consequently, automatic washer sales will create a new demand for electric water heaters and a desire for larger water heaters among present users.

In the past, some utilities have shown little interest in washer load because this appliance had a less desirable load factor than many other appliances, but with the automatic washer using more hot water, yet permitting smaller washings oftener, both the electrical consumption and the load factor are improved.

With the fully automatic washer, many users like to do a smaller washing several times a week and the hot water usage of different makes now being offered ranges from 12 to 35 gallons per washing.

Furthermore, the entrance into the automatic washer field by organizations such as General Electric, Westinghouse and Frigidaire, with their production and promotion ability, together with the shortage of domestic help, will not only greatly increase the automatic washer percentage of washer sales, but will naturally greatly increase the sales of electric ironers and electric driers.

I am sure you are all vitally interested in the promotion of the adequate wiring program, but with the great increase in the acceptance and sales of electric ranges and water heaters; with the automatic washer increasing the hot water demand and with an anticipated material increase in electric ironers and electric drier sales, the need for adequate wiring in new homes becomes more important than ever.

On the other hand, the spreading of the costs of adequate wiring in new homes, as well as the rewiring of old homes, over a greatly increased number of household electrical appliances, will soften the impact of heavy duty wiring costs of the homemaker.

The Home Freezer Revalued

And now, let us turn to another appliance—one which many have considered the "white-haired boy" of the appliance business—the home freezer. Certainly there is a wide difference of opinion regarding its potentialities. Estimates of sales have run all the way from 300,000 to over 2,000,000 units per year.

We believe that this market has been greatly over-estimated, with the result that we have far too many producers, as well as retailers, and we predict sizable casualties in this field.

Our information would indicate that this product is already well into a buyer's market in many areas. In justifying our conservative appraisal of the home freezer market, and our contention that

its potentialities have been greatly overestimated, let us consider only two pertinent points.

First, in the urban market, the home freezer is primarily a convenience, and therefore, a luxury item, and in most cases it cannot be sold on a "pays for itself" basis. Our experience has indicated that you cannot build a volume market for a major appliance on a luxury basis. Furthermore, we believe that such things as greater availability of frozen foods, rented home freezers, the locker plant and greater frozen storage space in household refrigerators will all have a depressing effect upon home freezer sales in the urban market.

Secondly, in the farm market where the purchase of a home freezer can be justified on economic grounds, the market has been over-sold as to the capacity needed. We hear much about the 20 cu ft frozen food capacity requirement of the farmer. We agree with the requirement of 4 to 5 cu ft per person, but believe that this requirement for the average farmstead can be met most economically through the use of say about an 8 cu ft home freezer on the farm supplemented by the necessary locker space.

Smaller Freezer for Farms Recommended

We recommend that the average farmer use a medium sized home freezer as processing equipment for smaller lots of food, and as intermediate storage between harvest and the locker plant, and between the locker and the farm table. We certainly advocate that the average farmer take full advantage of the services afforded by the locker plant in the processing of meat.

This recommendation may come as a surprise to some of you, who have heard perhaps too much about the 16 to 30 cu ft freezer requirements of the farmstead or some of you may know of installations already made of $500, $600 or $1,000 on well-to-do farms, but we are referring to that great mass market made up of the average farm family and our recommendation covers only the food to be consumed by that farm family.

In other words, we are excluding the farmstead that uses or needs frozen food equipment as processing equipment for the products of that farm. Where we confine ourselves to the table needs of the average farm family, the economics of our recommendation are quite convincing. An 8 cu ft home freezer and 6 cu ft at the locker plant as compared to a 14 cu ft freezer on the farm, will save the farmer approximately $40 per year, as well as reduce his original investment approximately $240. On the 20 cu ft requirement you actually hear more about today, the annual savings goes up to approximately $55 per year and reduces the original investment approximately $425. These annual savings figures include the cost of having the locker plant completely process the farmer's meat requirements, but they do not take into account the muss and fuss of barnyard butchering and the time taken from other farm work to accomplish this unpleasant task.

Future Sales Trends for Appliances

And now returning to consideration of the over-all appliance market, let us review some other factors which can serve in estimating demand and evaluating sales trends.

Sales trends in a market often cast their shadows far ahead of their time. Major appliances, normally being items which are sold on time payments to a large degree, are particularly susceptible to buyer influence considerably ahead of the time when buyer's resistance is perhaps felt in other types of consumer nondurable merchandise—products of a more expendable or subsistence nature.

However, today with a high percentage of cash sales as compared with normal times, and with time payments limited to 12 months, we are not in as good a position to evaluate the buying public's confidence in its ability to pay in the more distant future. Relaxation of Regulation W, of course, promises additional potential for major appliances, and, at the same time, will provide conditions which will more accurately reflect the confidence of the buying public in the future economic conditions of the country.

I am sure we can all agree that those of you who do not merchandise, but lend cooperative assistance to appliance dealers, as well as those of you who do merchandise electrical appliances are dependent to a large degree in building your domestic load, upon the sales success of the dealers selling on your lines.

Without a doubt, you are vitally interested in the welfare and stability of your appliance dealers, and therefore, a brief discussion of the problems ahead of the appliance dealer should not only prove interesting to you, but may help prepare you to be of greater assistance in counselling these dealers in the period just ahead.

Overexpansion in Retail Appliance Outlets

Dealer mortality resulting in orphaned appliance users on your line, often owning orphaned brands, will result in dissatisfied users, service problems and a general confusion that is bound to have a detrimental effect on user satisfaction with electrical appliances, as well as electric service.

Even in normal times, a marked change in buying habits or a slowing down of sales has a far-reaching effect on dealer welfare and profit possibilities.

Today we are faced with a new situation which in time may become very serious in its effects upon our industry. We refer to the tremendous increase in the number of major appliance retail outlets.

There are a number of factors which have contributed to this over-expansion in the number of appliance dealers. For example, the tremendous accumulated demand for appliances has been widely heralded. Entrance into the appliance business is probably easier than almost any other type of retailing. It is an accepted fact that the appliance industry weathered the last depression better than most any other hard goods lines.

Among the millions of returned veterans, there are literally thousands having that ever-blooming desire to go into business for themselves. Many of these returned veterans, and others without experience in the appliance business, have put their savings into appliance stores and many have gone into business largely on borrowed capital. Some of these thousands of new appliance dealers will weather the storm ahead, but we believe a high percentage of them are in for a bad time.

Let us consider just how serious the situation really is. Prewar, there were in the United States about 25,000 major appliance dealers and 25 million wired homes, or about one dealer for every 1000 wired homes. From this prewar experience, a rule of thumb was evolved that a major appliance dealer needed a minimum of 1000 families to exist. Best estimates today indicate there are between 50,000 and 60,000 major appliance dealers and this does not include many chain stores who have expressed a desire to get into the appliance business when they can get good lines.

Recent Market Studies

A recent check by *Electrical Dealer* of several markets indicates there is now a major appliance dealer for every 475

metropolitan meters, and one for every 300 rural meters. This gives us a composite picture of only 435 meters per appliance dealer, as compared with the before mentioned rule of thumb of 1000 meters per major appliance dealer.

As a result of this tremendous increase in the number of appliance dealers, we believe that a very high mortality of dealers is bound to come in the not too distant future. It is unfortunate that we have to go through such adjustments in our business cycle, but I am sure we can all agree that such an adjustment is inevitable.

Therefore, inasmuch as we apparently cannot avoid readjustment, we should try to do the best possible job of anticipating the situation, and take steps that will insure the best possible end result with the dealer organization that will survive.

In other words, if we are thoroughly familiar with the possible causes of dealer failure—if we realize the pitfalls of unsound management policies and procedures—we will be in a position to counsel wisely with dealers during the critical days ahead.

Many of the factors pointing to the inevitable dealer mortality which the appliance industry will experience are rather obvious. Yet, there are some contributing factors that may not be readily evident to those without years of experience in the art of major appliance merchandising.

9 Reasons for Dealer Mortality

So let us briefly look at some of the more important factors that will contribute to dealer mortality:

1. *Lack of capital.* Many appliance dealerships have been started on the proverbial "shoe-string," and without sufficient cash or available credit, they cannot be expected to survive when the going gets rough.

2. *Inability to secure franchise* of brand name products that will have consumer acceptance in a *buyer's* market.

3. *Poor store locations.* In the highly competitive days ahead, the attractiveness and location of the dealer's store will play a large part in his success or failure.

4. *Inexperience* in major appliance merchandising which may result in a disregard for the very fundamentals of successful appliance merchandising.

5. *Failure of the manufacturer* to guide the dealer properly through sound counsel and advice.

6. *Inequity* of the manufacturer's dealer policy.

7. *Poor service.* Due to lack of experience, the dealer may not attach proper importance to the part good customer service plays in successful appliance merchandising. As a result, he may also find himself with service obligations to his users on merchandise of poor design or construction that cannot be kept operating satisfactorily.

8. *Inability* of the dealer to handle trade-ins on a sound basis and successfully merchandise used appliances. Since an increasing proportion of all major appliance sales, particularly refrigerators, will represent replacements, and if the dealer is unable to handle the replacement market on a profitable basis, he will have little chance of success.

9. *Lack of aggressiveness and initiative* necessary to cope with the sales problems of a normal market. And every dealer should realize that a *normal market is a buyer's market.* Whatever success a dealer may enjoy during the present, short-lived seller's market is no guarantee of success when tough competitive selling again becomes the rule.

Other causes of failure could be added to this list, but probably these include most of the more important factors that will contribute to dealer mortality in the period ahead. When this dealer mortality reaches its peak, we can expect a most chaotic condition with all the evils usually associated with dumping, such as price cutting and chiseling of every kind. If a dealer is to steer his operation through this dangerous period successfully, he must recognize the basic fact that every major appliance that is built will be sold to someone at some price. It will find its place in some user's home. Even the poorest of these appliances can be expected to give a few years of service during which time that homemaker will be out of the market.

Probable Effect of Dealer Price War

When price cutting has started, it will call for careful sales management on the part of the ambitious, aggressive dealer who expects to succeed and maintain a permanent business. If he tries to meet price cutting with price cutting, it will spell his downfall.

No dealer who is to survive can hope to meet the cut prices of a dealer who is forced to liquidate his inventory. Because no matter how far he may go in meeting the situation, the liquidating dealer still must liquidate. To push the liquidating dealer into an even greater loss will bring no benefit to the dealer who wants to survive. If he attempts to pursue such a policy, he will only jeopardize his own chance of success because of the lack of profit which will result from such sales strategy on his part.

Instead of following the price cutting spiral down to his destruction, the dealer who is to survive will have to call upon every ounce of sales ability he has. He will have to train his sales organization better than ever before, and inspire and drive his sales force toward the greatest sales effort that has been put forth in this business in many years.

Yes, the only thing a dealer who wants to survive can do is to *sell.* Sell his brand; sell against the future orphan brand; sell his products' features; sell his service, his integrity and his business stability. Obviously, in spite of all his sales ability and his hard-hitting sales effort, he will lose many sales to liquidating dealers. But nevertheless, the dealer who puts forth the necessary amount of the right kind of sales effort will secure sufficient profitable orders to enable him to survive this period of readjustment.

Unfortunately, we have not been able to bring you a very optimistic picture. It would have been far more pleasant to have dealt with generalities and painted a glowing picture of the tremendous demand for appliances with smooth sailing ahead for everyone concerned. Instead, we have tried to reflect the appliance outlook as we see it, and point out some of the dangers which threaten as a result of recent developments in our business. We have tried to give you an honest appraisal of the situation, because it is only by being realistic and looking facts in the face that we can plan for the future with any degree of intelligence or hope of success.

And so, in review, we should remember that the present backlog of pent up demand actually represents unfilled desires—not unfilled orders. Whether or not they all become orders depends upon a lot of things in the economic scheme of things which are beyond your control and ours.

The transition from a seller's to a buyer's market may be fairly rapid, but will vary with different appliances and various markets. I think we all agree that dealer mortality will be high between now and the time the appliance market levels off to a normal basis.

There is little, if anything, we can do to correct this situation. Thousands who lacked capital, background, training and

aptitude have rushed into this business, and many of them are certain to fall by the wayside.

So it all comes down to this: It is essentially our job to work constructively with all of those dealers who have a chance to survive. We must help them to become better dealers so that they can continue to sell appliances and broaden the development of the major appliance industry—increasing the contributions it has made and will continue to make to better living.

This industry and its manufacturers will never be any better off than its dealers. We, in Frigidaire, have a fundamental operating principle which constantly guides our decisions in dealer operations. We recognize that our success is directly related to the success of our dealers, and we believe that any policy that is not good for our dealers is not good for Frigidaire.

We certainly recognize to the fullest extent the many valuable contributions which the electric utilities have made to the progress and development of the appliance industry. And, valuable as your activities have been in the past, we believe that the critical days ahead will provide even greater opportunities for the cooperative promotional effort and sales building activities which you are set up to handle so effectively.

11 Point Program for Sales Building

And so, in conclusion, I would like to suggest for your consideration a few things you could do—some of which you may now be doing—which we believe will contribute greatly to the success of the electrical appliance industry and everyone connected with it. We suggest that you:

1. Wherever possible help your appliance dealers to make them better business men by teaching them the fundamentals of sound business practices so they will be better able to survive the storms ahead and become an important adjunct to their respective communities and an important part of your domestic load building activity.

2. Wisely counsel with the potential dealers who may come to you for advice —advise them to associate themselves wtih successful dealers and learn the business before they attempt to strike out for themselves.

3. Promote better public relations, better dealer relations, better acceptability and a larger market for electrical appliances through sound dealer cooperative plans, necessary merchandising effort, favorable installation charges and attractive electric rates.

4. Assist in the building of public acceptance for home freezers on an economically sound basis.

5. Aid in the development of an adequate electric range wiring program that will accelerate the development of this market. Help in spreading the story of electric cookery in both the urban and rural areas.

6. Vigorously promote the installation of water heaters of sufficient capacity to properly serve such appliances as automatic clothes washers, dishwashers, etc., to insure public satisfaction with this appliance. Cooperate in the standardization of water heater wattages, as well as reductions in other installation and operating factors of cost.

7. Assist in the promotion of complete kitchens and laundries.

8. Promote adequate wiring in new homes to assure the future market for major appliances, as well as to build greater user satisfaction for electrical service.

9. Assist in every way possible with plans, promotions and programs in cooperation with manufacturers and dealers to sell the greater desirability of electric service in comparison with L/P or bottled gas.

10. During this period of short supply do not promote or participate in promotional plans, the timing or nature of which may build ill will rather than good will toward the electrical appliance industry.

And finally—

11. Continue the splendid cooperation and assistance which you have given in the past to the retail appliance dealer, the wholesaler and the appliance manufacturer in building greater acceptance for electric service through electrical appliances.

LAURA MCCALL AWARD
THOMAS W. MARTIN AWARD

Companies planning to enter the contests for the above awards are urged to get their entries in promptly. Entries for the McCall Award must be forwarded to E.E.I. by Feb. 15, 1947, and entries for the Martin Award, by Feb. 1, 1947. Prize winners will be announced at the E.E.I. Sales Conference in Chicago, March 31-April 3, 1947.

Full information concerning these awards is available from Miss Mae Woods, Secretary, Edison Electric Institute, 420 Lexington Ave., New York 17, N. Y.

Material Cost Trends

(*Continued from page* 381)

other components of cost that have all been subject to increases such as raw materials, manufacturing overhead, selling and advertising expenses, general and administrative expense, non-operating expenses, taxes and profits.

Recapitulation of Price Trends

This discussion of material price trends may be recapitulated as follows:

(a) Estimates have been made of the costs of certain principal materials used by the privately-owned electric utility industry in 1939. The materials include a substantial percentage of all those used, excluding major plant equipment, but there are obvious omissions such as office equipment and supplies, etc.

The quantities were derived from an EEI report (1941) or were estimated by the writer.

Prices were taken from published data, or average unit costs were estimated where necessary.

The writer is solely responsible for all estimates and assumptions.

(b) The materials were grouped under 17 headings and price indices estimated for each group using published price indices if available, otherwise the writer's estimates. The price indices do not reflect any subsidies paid.

(c) These indices were applied to the 1939 estimated costs to determine what the 1939 quantities of materials would have cost from 1939 to 1945 and in August, 1946 (exclusive of subsidies).

(d) These yearly costs were combined to give an indication of how the composite price levels for the Fuels and for the Materials specified have varied from 1939 to August, 1946, and that was the subject of this discussion.

In conclusion may I repeat that the material delivered-cost trends found are for the privately-owned utility industry as a whole and are limited to the items specified. It is quite probable that there will be disagreement as to the data employed and that the price pattern found will not be true for an individual operating company or even for a group of operating companies. It is hoped, however, that the discussion will have emphasized the need for being specific as to both the material and its location when speaking of material prices and price changes and that the treatment of the subject has been informative in some degree to the members of the Materials and Supplies Committee.

PERSONALS

GEORGE A. DAVIS, president of the Oklahoma Gas and Electric Co., who has devoted a large part of his time for many years to the upbuilding of the Oklahoma National Guard, has been promoted to rank of major general. An Oklahoma Distinguished Service Medal was awarded to the general by Gov. Robert S. Kerr for his outstanding six years' service to the state as Adjutant general.

HAROLD TURNER has been elected a vice president of the Ohio Power Company and a member of the board. Mr. Turner succeeds the late E. A. LEWIS as vice president and general manager of the Ohio Power Company.

Mr. Turner went to Canton, the operating headquarters of the Ohio Power Company, in 1941 as Assistant General Manager. Previous to 1941, he was a member of the engineering staff of American Gas and Electric Company. Beginning in 1926 as an engineer in the system protection section. Mr. Turner became in 1934 executive assistant to the vice president and chief engineer of American Gas and Electric Service Corporation. Mr. Turner is also a Director of this latter corporation.

Born in Ontario, Canada, in 1902, Mr. Turner graduated from the University of Toronto, Faculty of Applied Science, in 1924 with the degree of B. A. Sc. Upon graduaton, he spent a year in the Test Department of the General Electric Company at Schenectady, N. Y., and Pittsfield, Mass., followed by periods in the Alternating Current Engineering Department and the Central Station Engineering Department of the company at Schenectady.

H. H. MARSH, JR., has been appointed general superintendent of substations and shops, Duquesne Light Co., Pittsburgh. Mr. Marsh succeeds R. H. ROUGHEN, who retired in September after 42 years with the company. In his new position, Mr. Marsh will be responsible for the operation of all the company's substations, and the wide range of repair and maintenance work carried on by the substations and shops department. Mr. Marsh has been identified with the company since 1922 and at the time of his recent promotion was serving as assistant general superintendent of the substations and shops department. K. W. KAYLER, formerly superintendent of operation of the department, has been appointed to succeed Mr. Marsh.

LEO H. JENNINGS has been appointed chief system supervisor of the electrical system of the Detroit Edison Co. Formerly assistant chief supervisor, Mr. Jennings succeeds HARRY L. SHIMMAN, retired. Mr. Jennings started with the Detroit utility in 1916. WILLIAM P. FRENCH has been promoted from system supervisor to assistant chief supervisor of the electrical system.

ALEX F. NAUMANN has been appointed superintendent of maintenance of the Northern States Power Co., Eau Claire, Wis., succeeding the late N. N. BUCK.

LOUIS J. REHBERG has been appointed superintendent of the Marysville power plant of the Detroit Edison Co. to succeed ALBERT E. LAURIE, retired. Formerly assistant superintendent at Marysville, Mr. Rehberg joined the Detroit utility in 1909 shortly after graduation from the University of Michigan.

JOHN L. KILPATRICK, formerly manager of sales and engineering for the Philadelphia Electric Manufacturing Co., has been appointed manager of the lighting sales department of Jersey Central Power and Light Co., Asbury Park, N. J. Mr. Kilpatrick worked for many years in both the lighting and lamp divisions of Westinghouse and it was because of his background and experience that he was selected by the U. S. Government to investigate German developments in this field. With the rank of colonel, Mr. Kilpatrick was the illumination member of the technical intelligence branch of government activities, and as such, spent several months in the European theatre. Active on several national committees of the Illuminating Engineering Society, Mr. Kilpatrick is a member of the U. S. National Committee of the International Commission on Illumination. He is also retained by the U. S. Department of Commerce as scientific consultant on illumination.

JOHN FROST has been appointed senior engineer, construction division, Philadelphia Electric Co. Mr. Frost became identified with the Philadelphia utility in 1919 as inspector of underground lines. After holding various positions in connection with underground engineering work, he was named assistant superintendent, underground lines, and last year was appointed superintendent of that section, the position he held at the time of his recent appointment.

HENRY L. BOWEN, formerly assistant superintendent of the Augusta division of Georgia Power Co., has been promoted to assistant manager of the industrial relations department. Mr. Bowen joined the company in March, 1926, while studying at Georgia Tech.

G. L. FURR, for the past three years division manager of the Bluefield division of the Appalachian Electric Power Co., has been promoted to the newly created position of assistant general manager, with headquarters in Roanoke, Va. Mr. Furr has been identified with the electric company in Bluefield for 30 years. He will be succeeded as division manager of the Bluefield division by J. P. GILLS, who has been his assistant for the past three years. Mr. Gills has been connected with the company since 1917.

CHARLES M. YALE has retired as superintendent of distribution for the Hartford Electric Light Company. He is succeeded by HARRY K. WILLIAMS. Mr. Yale is completing forty-six years of service with the company. He was in charge of the overhead and underground distribution system for thirty-four years. Mr. Williams has been Mr. Yale's assistant since 1936.

Mr. Yale entered the employ of the company on December 28, 1899, as stockroom clerk. He was appointed superintendent of distribution in 1912. He has long been active in the development of the electrical industry. He supervised the construction of the Hartford-Agawam transmission line, Falls Village-Poughkeepsie transmission line and many others.

His successor, Mr. Williams, joined

the company upon graduation from Rensselaer Polytechnic Institute on July 5, 1922. In 1923 he was made assistant foreman and in 1924 he was promoted to be general foreman. In 1936 he was made assistant superintendent of distribution. He is a native of Sandy Creek, New York. His home is in West Hartford.

REUEL O. LAUNEY, auditor of Consolidated Edison Company of New York, Inc., since 1941, has retired from that post in October under the provisions of the company's retirement program. He will be succeeded by ARTHUR E. HALD, manager of the company's Auditing Department since 1941.

Mr. Hald was employed by the Brooklyn Edison Company in 1920 as a clerk in the Accounting Department. He advanced until in 1935 he was appointed manager of the General Accounting and Disbursement Bureaus. Later the same year, he was transferred to Consolidated Edison as manager of the Internal Audits and Methods Bureau, a post which he held until his appointment as manager of the Auditing Department.

Mr. Launey began his utility career in 1900 when he joined the Savannah Thunderbold Company, later the Savannah Electric Company, in Georgia. He was paymaster in 1904 when he left to enter the accounting department of the Birmingham Railway, Light and Power Company. In 1918 he was made auditor of the United Gas and Electric Engineering Corporation of New York, and was assigned also to audit the books of eight railway, electric and gas properties.

Mr. Launey became auditor of the Brooklyn Edison Company in 1921 and in 1938 he was elected an associate controller of Consolidated Edison, continuing as auditor of the Brooklyn company.

JOHN J. BRIXNER has been promoted to be general claim agent of the Public Service Corporation of New Jersey, succeeding HARRY V. DROWN, who retires on pension after almost forty years' service with the company. Mr. Brixner has been assistant general claim agent since December 1, 1943.

The promotions of HERBERT F. MYERS to be assistant general claim agent, succeeding Mr. Brixner, and HARVARD E. LAWSON to be claim agent, Essex Division, succeeding Mr. Myers were also announced.

Mr. Drown started in claims work for the Consolidated Traction Company of Pittsburgh in 1899. After all-round training in the department, he was sent in 1901 to the Cincinnati Traction Company which was under the same management, to reorganize and direct the claim department of that company. In 1903 he accepted a position as claim agent for the Rhode Island Company of Providence. On February 18, 1907, Mr. Drown started with Public Service as assistant claim agent. In August of that year he was appointed general claim agent.

Mr. Brixner started with Public Service on November 1, 1917, as an investigator in the company's Essex Division. On April 1, 1931, he was made assistant claim agent and in 1935 he was promoted to claim agent in that division. On October 1, 1941, Mr. Brixner was promoted to assistant to the general claim agent and two years later was made assistant general claim agent. Mr. Brixner lives at 233 Prospect Street, East Orange.

Mr. Myers, who lives at 34 South Second Street, Hackensack, started with Public Service as a clerk in the claim department, Hudson Division, June 22, 1909. He was made claim agent, Bergen Division, in 1920 and claim agent, Essex Division, October 1, 1941.

Mr. Lawson started with the company as an investigator in the claim department, Essex Division, March 8, 1920, and was made an adjustor in that division October 7, 1943. Mr. Lawson lives at 28 Byrd Avenue, Bloomfield.

Barney Succeeds Ferguson as Hartford Electric President

(*Continued from page* 374)

as Dr. C. P. Steinmetz and Dr. W. P. Whitney. He brought to the Hartford company, then in its early stages of development, a knowledge of modern developments in the electric art, and he has seen the company under his management progress to an outstanding position in the electric industry and to a vital place in the every-day life of metropolitan Hartford.

Mr. Ferguson became president in 1924. He is former president of the Association of Edison Illuminating Companies and is a trustee of the Edison Electric Institute, and a member of the American Institute of Electrical Engineering. In 1936, Rensselaer Polytechnic Institute awarded him the honorary degree of Doctor of Engineering in recognition of his contributions to the development of electrc power. He is a trustee of Trinity College.

His activities in the community are numerous, as represented by his directorships in insurance, financial and industrial establishments of Hartford.

Mr. Barney is a native of Hartford and a grandson of the late Austin C. Dunham, founder and first president of the company. His father, the late D. Newton Barney, was for many years, also, an officer of the company. Mr. Barney is a graduate of Yale University and Yale Law School, and saw overseas service as an artillery officer in World War I. He has been associated with the company since 1924 when he became its counsel. He was made general counsel in 1928, vice president in 1936 and a director in 1944.

Mr. Barney has been active for a number of years in state and municipal affairs, civic, welfare, financial and insurance circles. He served in the state Senate for two terms, was judge of the Farmington court for four years, first selectman of that town for eight years and has been chairman of the town's board of finance since 1938.

Mr. Applegate, newly chosen executive vice president, and a resident of West Hartford, has been general manager since 1929. He joined the company as electrical engineer, following his graduation from Rensselaer Polytechnic Institute in 1912, the same year in which Mr. Ferguson became connected with the company as vice president.

After serving in the engineering department for several years and later as power salesman, Mr. Applegate was appointed purchasing agent in 1916. He served for thirteen years in that capacity, being promoted to general manager in 1929 and vice president in 1943.

He saw naval service overseas as an engineer officer with the Atlantic Fleet in World War I, and was chairman of the Utilities Division of the Hartford War Council during World War II, in which his two sons saw service in the European and Pacific theaters of operations.

Th' Goblins'll Getcha!

(*Continued from page 382*)

attention had not been called repeatedly to the bill by an over-zealous clerk anxious to make his division "tops" in collections. Except for their regular bills for service, customers probably receive more "friendly reminders" or "cut-off" notices than any other type of communication from their utility company. How then could we expect to have anything but the present conception of utilities as expressed on the radio and in the comics?

What can we do about it?

Obviously it will be impossible to solve this problem overnight. We have been years building up this feeling, and it may take years to break it down. Certainly we cannot outlaw the use of the cut-off situation in comic strips and radio programs. The "Tin Lizzie" jokes did not disappear until Ford made a better car. Jokes about OPA will disappear when and if we return to free pricing. But the mother-in-law joke will always be with us. Shall we say the same about the reputation of the utility industry?

There is no simple solution. No one is recommending the elimination of collection departments. The answer may be in bigger and better collection departments.

Perhaps the only solution lies in eliminating the feeling that because we are a monopoly, we need our own special rules. Why not stop giving mass treatment to our collection problems and treat our customers as individuals. Many companies have already made great strides in this direction.

After all, if you have a sore finger, you don't cut off your hand or even the finger—you get expert medical attention and nurse the sore finger back to good condition. Could we do the same with our customers—and not trust our collection problems to a goblin with a pair of pliers?

Remember, we too have goblins to face—the goblins of bad customer relations and of Government competition.

Let's consider ourselves as retail merchants in the communities we serve, competing to KEEP our customers and their good will. Let's make them so glad to do business with us that they won't ever consider letting someone else serve them.

The goblins'll get YOU if you don't watch out!

CONVENTIONS AND MEETINGS

1946

DECEMBER

2-3 Prime Movers Committee, EEI, New York, N. Y.
2-6 The American Society of Mechanical Engineers, Hotel Pennsylvania, New York, N. Y.
5-6 Pacific Coast Electrical Association, Inc., Annual Fall Conference, Fresno, Calif.
5-7 Northwest Electric Light and Power Association, Fall Conference, Personnel Section, Vancouver Hotel, Vancouver, B. C.

1947

JANUARY

13-15 Canadian Electrical Association, annual winter conference, Chateau Frontenac, Quebec City, Que.
27-31 American Institute of Electrical Engineers, New York, N. Y.

FEBRUARY

3-4 Prime Movers Committee, EEI, Van Curler Hotel, Schenectady, N. Y.
5-7 Missouri Valley Electric Association, Annual Power Sales Conference and Industrial Power and Heating Section, EEI, Hotel Continental, Kansas City, Mo.
10-11 Transmission and Distribution Committee, EEI, Atlanta Biltmore Hotel, Atlanta, Ga.
12-13 Electrical Equipment Committee, EEI, Atlanta Biltmore Hotel, Atlanta, Ga.
13-14 Pennsylvania Electric Association, Systems Operation Committee, Lord Baltimore Hotel, Baltimore, Md.
20-21 Pennsylvania Electric Association, Electrical Equipment Committee, Penn-Harris Hotel, Harrisburg, Pa.
20-21 Pennsylvania Electric Association, Transmission and Distribution Committee, Penn-Harris Hotel, Harrisburg, Pa.

MARCH

3-5 Canadian Electrical Association, Western Conference, Vancouver, B. C.

APRIL

March 31-April 3 Thirteenth Annual Sales Conference, EEI, Edgewater Beach Hotel, Chicago, Ill.
7-9 AGA-EEI National Accounting Conference, Hotel Statler, Buffalo, N. Y.
16-18 Missouri Valley Electric Association, Engineering Conference, Hotel Continental, Kansas City, Mo.
28-30 Engineering Committees, EEI, Edgewater Beach Hotel, Chicago, Ill.

MAY

5-9 National Electrical Wholesalers Association, Hotel Traymore, Atlantic City, N. J.
27-29 National Association of Purchasing Agents, Chicago, Ill.

JUNE

2-5 EDISON ELECTRIC INSTITUTE, Annual Meeting, Atlantic City, N. J.
18-20 Canadian Electrical Association, 57th Annual Convention, Algonquin Hotel, St. Andrews, N. B.

Conowingo Records 15 Years Without Lost-Time Accident

THE Conowingo Power Company completed this month a record of fifteen years without a lost-time accident in its operations. During this period, 1,449,929 man-hours were worked, in fair weather and foul. This is one of the most remarkable safety records in the United States.

Albert R. Granger, president of the Conowingo Power Company, gave a dinner last night at North East, Md., to commemorate this event. Approximately eighty persons were present, including many officials from the Philadelphia Electric Company, with which the Conowingo Power Company is associated.

In presenting an honor certificate commending this performance, to Lewis H. George, Conowingo Power Company safety chairman, George S. Van Antwerp, vice-president of the Company, said, "Safety records of this caliber speak for themselves. They cannot be made, however, without the full and hearty cooperation from all employees involved. In some organizations a safety record without blemish for one year, or two years, is rightfully considered an outstanding performance. Here we are celebrating a no-accident record of fifteen years, involving a group of some fifty workers, many of whom are engaged in occupations commonly considered hazardous. This is a remarkable performance, indeed. Everyone in this company-wide effort can be rightfully proud of this achievement. All of you have my heartiest congratulations."

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

OFFICERS

GROVER C. NEFF, *President*.....Wisconsin Power & Light Co., Madison, Wis.
P. H. MCCANCE, *Vice President*.....Duquesne Light Co., Pittsburgh, Pa.
H. S. BENNION, *Vice-President and Managing Director*....420 Lexington Ave., New York 17, N. Y.
K. B. CRUMB, *Treasurer*.....American Gas & Electric Service Corp., New York, N. Y.
MAE B. WOODS, *Secretary*.....420 Lexington Avenue, New York 17, N. Y.

BOARD OF DIRECTORS

(Terms Expiring 1947)

J. M. BARRY.....Alabama Power Co., Birmingham, Ala.
W. C. BELL.....The United Illuminating Co., New Haven, Conn.
G. A. DAVIS.....Oklahoma Gas & Electric Co., Oklahoma City, Okla.
G. M GADSBY.....Utah Power & Light Co., Salt Lake City, Utah
R. D. JENNISON.....New York State Electric & Gas Corp., Binghamton, N. Y.
F. C. KELLOGG.....Public Utility Engineering & Service Corp., Chicago, Ill.
G. L. MACGREGOR.....Dallas Power & Light Co., Dallas, Tex.
GROVER C. NEFF.....Wisconsin Power & Light Co., Madison, Wis.
CHARLES E. OAKES.....Pennsylvania Power & Light Co., Allentown, Pa.
J. H. POLHEMUS.....Portland General Electric Co., Portland, Ore.
P. H. POWERS.....West Penn Power Co., Pittsburgh, Pa.
C. C. SMITH.....Kansas City Power & Light Co., Kansas City, Mo.
FRANK M. WILKES.....Southwestern Gas & Electric Co., Shreveport, La.

(Terms Expiring 1948)

H. B. BRYANS.....Philadelphia Electric Co., Philadelphia, Pa.
R. E. DILLON.....Boston Edison Co., Boston, Mass.
J. G. HOLTZCLAW.....Virginia Electric & Power Co., Richmond, Va.
R. H. KNOWLTON.....The Connecticut Light & Power Co., Hartford, Conn.
J. E. LOISEAU.....Public Service Company of Colorado, Denver, Colo.
FRANK MCLAUGHLIN.....Puget Sound Power & Light Co., Seattle, Wash.
W. E. MITCHELL.....Georgia Power Co., Atlanta, Ga.
W. C. MULLENDORE.....Southern California Edison Co., Ltd., Los Angeles, Calif.
W. H. SAMMIS.....Ohio Edison Co., Akron, Ohio
PHILIP SPORN.....American Gas & Electric Service Corp., New York, N. Y.
L. V. SUTTON.....Carolina Power & Light Co., Raleigh, N. C.
E. S. THOMPSON.....American Water Works & Electric Co., Inc., New York, N. Y.
G. W. VAN DERZEE.....Wisconsin Electric Power Co., Milwaukee, Wis.
JUSTIN R. WHITING.....The Commonwealth & Southern Corp., New York, N. Y.
P. S. YOUNG.....Public Service Electric & Gas Co., Newark, N. J.

(Terms Expiring 1949)

H. C BLACKWELL.....The Cincinnati Gas & Electric Co., Cincinnati, Ohio
W. H. BURKE.....Ebasco Services Inc., New York, N. Y.
A. H. KEHOE.....Consolidated Edison Company of New York, Inc., New York, N. Y.
WILLIAM KELLY.....Buffalo Niagara Electric Corp., Buffalo, N. Y.
FRANK KRUESI.....Middle West Service Co., Chicago, Ill.
ELMER L. LINDSETH.....The Cleveland Electric Illuminating Co., Cleveland, Ohio
C. E. MICHEL.....Union Electric Company of Missouri, St Louis, Mo.
J. W. PARKER.....The Detroit Edison Co., Detroit, Mich.
H. T. PRITCHARD.....Indianapolis Power & Light Co., Indianapolis, Ind.
K. M. ROBINSON.....The Washington Water Power Co., Spokane, Wash.
E. C. STONE.....Duquesne Light Co., Pittsburgh, Pa.
R. L. THOMAS.....Consolidated Gas Electric Light & Power Co., Baltimore, Md.
WILLIAM WEBSTER.....New England Power Association, Boston, Mass.
A. EMORY WISHON.....Pacific Gas and Electric Co., San Francisco, Calif.
H. E. YOUNG.....Northern States Power Co., Minneapolis, Minn.

(Executive Committee)

The Executive Committee consists of the following members of the Board of Directors: Messrs. W. C. Bell, H. B. Bryans, W. H. Burke, William Kelly, C. E. Oakes, P. H. Powers, W. H. Sammis, E. C. Stone, P. S. Young.

EDISON ELECTRIC INSTITUTE OFFICERS AND COMMITTEES

(Continued)

ADVISORY COMMITTEE

P. S. ARKWRIGHT.....Georgia Power Co., Atlanta, Ga.
D. C. BARNES
Engineer Public Service Co., New York, N. Y.
H. J. BAUER
Southern California Edison Co., Ltd., Los Angeles, Calif.
S. R. BERTRON
Houston Lighting & Power Co., Houston, Tex.
J. B. BLACK
Pacific Gas and Electric Co., San Francisco, Calif.
CURTIS E. CALDER
Electric Bond & Share Co., New York, N. Y.
JOHN W. CARPENTER
Texas Power & Light Co., Dallas, Tex.
T. D. CROCKER
Northern States Power Co., Minneapolis, Minn.
J. E. DAVIDSON.....Nebraska Power Co., Omaha, Nebr.
SAMUEL FERGUSON
The Hartford Electric Light Co., Hartford, Conn.
J. F. FOGARTY
The North American Co., New York, N. Y.
H. P. LIVERSIDGE
Philadelphia Electric Co., Philadelphia, Pa.
B. W. LYNCH..San Diego Gas & Electric Co., Chicago, Ill.
J. WESLEY MCAFEE
Union Electric Company of Missouri, St. Louis, Mo.
P. H. MCCANCE....Duquesne Light Co., Pittsburgh, Pa.
IRWIN L. MOORE
New England Power Association, Boston, Mass.
A. B. PATTERSON
New Orleans Public Service Inc., New Orleans, La.
H. HOBART PORTER..American Water Works & Electric Co., Inc., New York, N. Y.
WM. SCHMIDT, JR...Consolidated Gas Electric Light & Power Co., Baltimore, Md.
PAUL A. SCHOELLKOPF
Buffalo Niagara Electric Corp., Buffalo, N. Y.
GEORGE N. TIDD
American Gas & Electric Co., New York, N. Y.
E. A. YATES
The Commonwealth & Southern Corp., New York, N. Y.

CHAIRMEN OF EDISON ELECTRIC INSTITUTE COMMITTEES (1946-1947)

ACCOUNTING

Accounting Division General, H. P. TAYLOR.....Wisconsin Public Service Corp., Milwaukee, Wis.
Application of Accounting Principles, R. P. KAESSHAEFER..American Water Works & Electric Co., Inc., New York, N. Y.
Customer Activities, W. E. STURM.....West Penn Power Co., Pittsburgh, Pa.
Depreciation Accounting, A. W. HASTINGS.....Epsco Inc., New York, N. Y.
General Accounting, H. B. HARDWICK.....The Commonwealth & Southern Corp., New York, N. Y.
Plant Accounting and Records, A. J. MAYOTTE.....Consumers Power Co., Jackson, Mich.
Materials and Supplies, R. S. KING.....Union Electric Company of Missouri, St. Louis, Mo.
Taxation, W. S. ALT.....Union Electric Company of Missouri, St. Louis, Mo.

COMMERCIAL

Commercial Division General, RALPH P. WAGNER.....New York Power & Light Corp., Albany, N. Y.
Sales Personnel and Training, R. S. BELL.....The Commonwealth & Southern Corp., New York, N. Y.
Wiring, R. F. HARTENSTEIN.....Ohio Edison Co., Akron, Ohio
Commercial Sales Section, J. S. SCHUCHERT.....Duquesne Light Co., Pittsburgh, Pa.
Industrial Power and Heating Section, CHARLES SNYDER.....Monongahela Power Co., Fairmont, W. Va.
Residential Section, J. M. STEDMAN.....Pennsylvania Power & Light Co., Allentown, Pa.
Farm Section, E. C. EASTER.....Alabama Power Co., Birmingham, Ala.

ENGINEERING

Engineering Division General, P. H. CHASE.....Philadelphia Electric Co., Philadelphia, Pa.
Electrical Equipment, CHESTER A. CORNEY.....Boston Edison Co., Boston, Mass.
Hydraulic Power, PAUL M. LEFEVER.....Susquehanna Electric Co., Conowingo, Md.
Meter and Service, W. G. KNICKERBOCKER.....The Detroit Edison Co., Detroit, Mich.
Prime Movers, R. M. VAN DUZER, JR.....The Detroit Edison Co., Detroit, Mich.
Transmission and Distribution, L. R. GATY.....Philadelphia Electric Co., Philadelphia, Pa.

GENERAL

Accident Prevention, D. C. STEWART.....Niagara Hudson Power Corp., Buffalo, N. Y.
Industrial Relations, H. K. BRECKENRIDGE.....West Penn Power Co., Pittsburgh, Pa.
Insurance, J. H. NICKELL.....Philadelphia Electric Co., Philadelphia, Pa.
Membership, J. F. FOGARTY.....The North American Co., New York, N. Y.
Prize Awards, H. M. SAWYER.....American Gas and Electric Service Corp., New York, N. Y.
Rate Research, E. N. STRAIT.....Public Utility Engineering and Service Corp., Chicago, Ill.
Statistical, WINSOR MARTIN.....Public Utility Engineering and Service Corp., Chicago, Ill.
Transportation, JEAN Y. RAY.....Virginia Electric & Power Co., Richmond, Va.
Codes and Standards (a Subcommittee of the Board of Directors), H. B. BRYANS....Philadelphia Electric Co., Phila., Pa.